



TLS innovating the Life Sciences

Incubation, Research, Technology
transfer and Business development.





Numbers of a value generating innovation ecosystem	4
Give space to your research	7
TLS research activity	13
Education and high qualified skills in the Life Sciences	23
The Bio-incubator	27
<i>Incubated Companies</i>	31
<i>Research Groups</i>	51
<i>Affiliated Companies</i>	63

TOSCANA LIFE SCIENCES

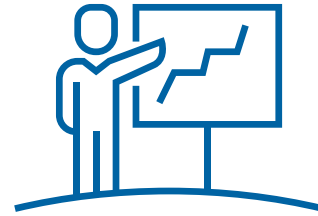
NUMBERS OF A VALUE GENERATING INNOVATION ECOSYSTEM

Toscana Life Sciences is a non-profit organization active in supporting research activities and promoting the creation of innovative companies in the Life Sciences field. Founded at the instigation of Tuscany's principal university, clinical, industrial and financial institutions, the Foundation is based in Siena, in the historical "Torre Fiorentina" area, where **Achille Sclavo** founded the eponymous **Istituto Sieroterapico e Vaccinogeno Toscano** in 1904, and where important multinational vaccine companies now strategically choose to locate their primary research and development activities. An environment of excellence that is part of a regional panorama in which the Life Sciences play a strategic role.



MORE THAN **13 MILLION EUROS** GENERATED AND ATTRACTED **IN 2022**

TLS keeps on growing and maintains its key position as investments and projects attractor in the life sciences sector. More than 13 Million euros has been generated and attracted to the regional territory by TLS. From 2007 TLS Foundation has been able to generate activities and investments for 78 million euros.



SCIENTIFIC **PUBLICATIONS**



164 NEW
PUBLICATIONS

164 articles in 2022 (22 of TLS Foundation, 929 overall from 2007), demonstrating the great commitment to R&D both for TLS Foundation and for companies and research groups of the bio-incubator.

EMPLOYMENT INCREASE +17%

Employment increased by 17% in 2022. There are in fact 98 employees working for the Foundation, for a total of 638 employees with companies and research groups incubated and affiliated to TLS.



638
EMPLOYEES

The performance indicators are referred to the 2022 fiscal year profit





GIVE SPACE
TO YOUR RESEARCH

GIVE SPACE TO YOUR RESEARCH



ARE YOU LOOKING FOR **SPACES**
FOR YOUR **ACTIVITIES**?

TLS offers more than 4,000 sqm of laboratories
in modules ranging from 15 to 150 sqm.

LABORATORIES AND **SPACES** FOR **COWORKING**

- Equipped laboratories •
- Offices •
- Meeting rooms •
- Auditorium •



FROM THE CONTAMINATION OF **IDEAS** TO FUTURE **BUILDING**

All our spaces are designed to allow cross-contamination and to encourage the
interchange among employees of different companies.
A dynamic environment to grow ideas for the future.

CONTACTS

Cristina Tinti
c.tinti@toscanalifesciences.org



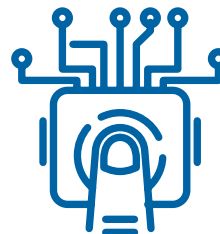
VISIT THE WEBSITE



RESEARCH SERVICES

HIGH **TECHNOLOGY** AT THE SERVICE OF **RESEARCH**

In TLS all research groups, start-ups, spin-offs and companies can find technological facilities and services to grow and face the market challenge.



ENTERPRISE ACCELERATOR BUT NOT ONLY



- Access to technical equipment and technology platforms
- Molecular profiling
- Validation and setting up of analytic methods
- In vitro and in vivo biological tests

Do you need tools and platforms with high added value? TLS offers exclusive-use instruments and technological facilities at competitive prices comparing to market standards.

CONTACTS

Laura Salvini
l.salvini@toscanalifesciences.org



VISIT THE WEBSITE



BUSINESS DEVELOPMENT



TAKE A **GOOD IDEA** AND TURN IT INTO **BUSINESS**

We are enterprise facilitators and accelerators. Thanks to different services and consultancies, TLS supports start-ups, companies and young people with interesting ideas in finding a steady place in the market.

- Support start-ups to plan and accelerate the development process
- Selection of licence agreements, research and business opportunities
- Support to companies to gather the most interesting business opportunities
- Research and orientation activities to gather national and international funding opportunities

CONTACTS

Francesco Maria Senatore
f.senatore@toscanalifesciences.org



VISIT THE WEBSITE

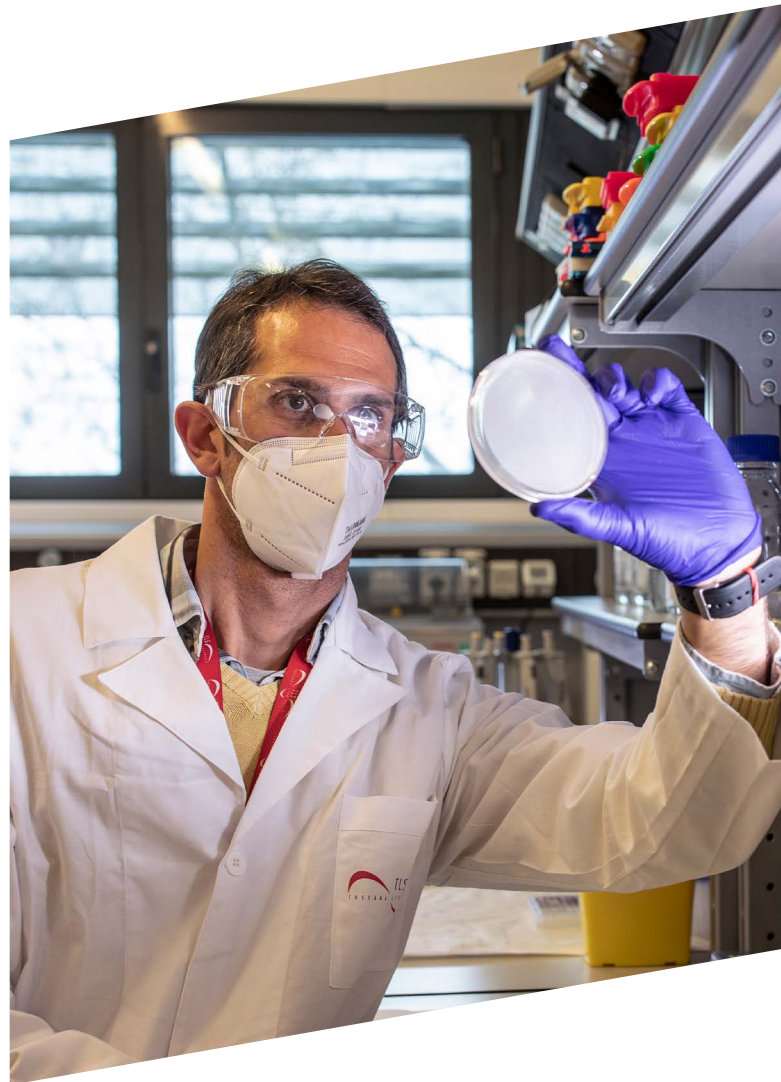


INTELLECTUAL PROPERTY PROTECTION

TO HAVE A **GOOD IDEA** IS NOT ENOUGH,
IT MUST **BE DEFENDED**

TLS offers intellectual property consultancy in order to protect products' and services' value.

The best defence is the attack. When we talk about Intellectual Property, the defence is never enough. For this reason we also offer support services to prepare and to present patent applications.



CONTACTS

Andrea Frosini
a.frosini@toscanalifesciences.org



VISIT THE WEBSITE







TLS RESEARCH ACTIVITY

BOTANICALS LAB

GENERAL DESCRIPTION

Preparations based on medicinal plants or “botanicals” represent an important segment of the Italian and European health market. Their long tradition of use represents a guarantee of safety and efficacy, however the monitoring of the products on the market has highlighted many critical issues due both to the intrinsic complexity of the plant extracts and to the current lack of recognized analytical protocols. The quality control of botanicals requires in-depth knowledge of each phytocomplex and the definition of standards to ensure the authenticity of the product and its ingredients.

RESEARCH ACTIVITIES

To embrace this challenge, Toscana Life Sciences has created a research and quality control structure capable of providing quali-

quantitative protocols of widely consumed vegetable matrices in order to define their phytochemical profile, as well as both their consolidated and traditional use. For this reason, together with Materia Medica Processing, it has created the joint Botanicals Lab which offers this type of services by combining skills, know-how and by sharing technologies.

CONTACTS

botanicalslab@toscanalifesciences.org

[VISIT THE WEBSITE](#)



DATA SCIENCE FOR HEALTH (DaScH) Lab

GENERAL DESCRIPTION

The **Data Science for Health (DaScH) Laboratory** is the new TLS research unit for the application of data sciences and new technologies at the service of scientific research. The DaScH-Lab relies on the expertise of a diverse group of computational and machine-learning scientists working at the interface with experimental teams on a wide range of life science challenges.

RESEARCH ACTIVITIES

DaScH-Lab develops and applies innovative approaches to understand biology through computing, focusing on data-rich problems to facilitate the discovery of biologic products against infectious diseases.

The lab covers different areas of data science, including:

1. Population genomics and immuno-informatics: analysis of pangenomes from bacteria and viruses, of immune repertoires from healthy and diseased individuals, and their interplay.
2. Computational structural biology: development of deep-learning models combined with molecular dynamics simulations for the analysis of antigen-antibody interactions, to improve or design ab-initio biologic products.
3. Digital microscopy: use of deep-learning techniques, including generative-adversarial networks (GANs), for the high-throughput analysis of confocal microscopy images to explore host-pathogen interactions at the sub-cellular level and automate the in silico analysis of compounds.
4. Advanced Data Platforms to manage and integrate high-dimensional biologic data-flows, in collaboration with the Siena Artificial Intelligence Hub network.

To perform its activities, the lab uses a balanced mix of on-prem and in-cloud computational resources, including a Virtual-Reality laboratory for real-time molecular dynamic (MD) simulations and structural modelling that allows the team to explore the dynamics of interacting molecules, a Google Cloud Platform and a strategic

collaboration with the University of Pisa high-performance computing centre.

The lab has established strategic collaborations with Academic partners in Italy and abroad also to support joint doctoral and postdoctoral research fellowships, including the Universities Siena, Modena and Cambridge (UK).

CONTACTS

Data Science Strategic Director: Dr. **Duccio Medini**

[VISIT THE WEBSITE](#)



HYPER ANTIBODY RESEARCH DEVELOPMENT (HARD) LAB

GENERAL DESCRIPTION

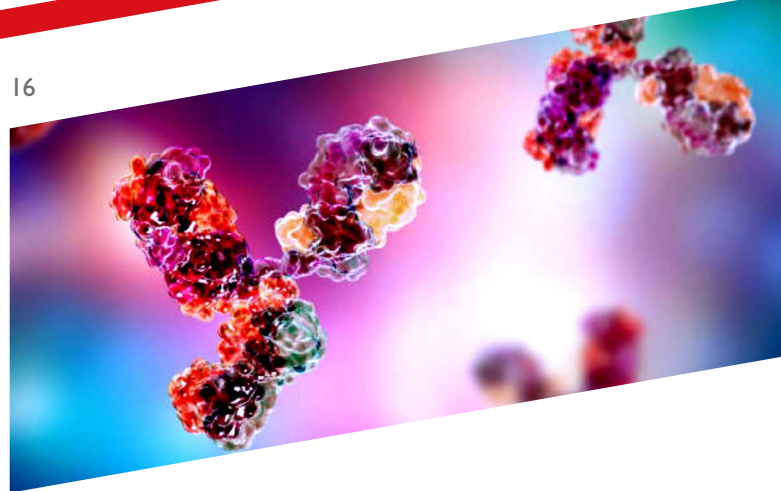
Officially launched in 2022, **HARD-Lab** (High-Throughput Antibody Research and Development Lab) is dedicated to cutting-edge research and development in the field of **antibody-based diagnostics and therapeutics**, focusing on areas of medical importance such as oncology, metabolic, infectious and rare diseases. These areas represent significant challenges in diagnosis and treatment, and antibody-based therapeutics offer great potential for innovative solutions. The **HARD laboratory** offers a range of services tailored to the development of custom polyclonal, monoclonal and bispecific antibodies, including recombinant protein and antibody production, purification, characterisation and conjugation, and specialises in providing comprehensive research services.

RESEARCH ACTIVITIES

Innovation is at the heart of **HARD-Lab's** mission and we are engaged in several critical endeavours, one of which is the establishment of a state-of-the-art, high-throughput platform dedicated to the identification and isolation of human, mouse and rabbit monoclonal antibodies. We are currently exploring new screening strategies for the generation of functional antibodies and establishing a reliable and robust method for the production of recombinant mAbs against structurally complex transmembrane proteins to facilitate the development of potential diagnostics and therapeutics against difficult-to-target antigens. We are committed to exploring new technologies, novel antibody formats and advanced techniques to improve the efficacy, specificity and safety of antibody-based therapies. Through our research efforts, we aim to discover breakthrough solutions and make significant contributions to the field of antibody-based diagnostics and therapeutics.

HARD-Lab values collaboration and partnership to promote a multidisciplinary approach to research and development.

16



We actively seek collaborations to combine strengths, share knowledge and accelerate the translation of research into practice. Through collaborative efforts, we aim to increase the impact of our research and to accelerate the introduction of antibody-based therapeutics into clinical practice.

GRANT HEAL ITALIA

Duration: 3 years

Start date: December 2022

Amount: 2.430 Million Euros

GRANT PROREACT

Duration: 3 years

Start date: January 2023

Amount: 3.943.422 Million Euros

CONTACTS

Principal Investigator:

Dr. **Piero Pileri**

p.pileri@toscanalifesciences.org

Coordinator:

Cristina Tinti

c.tinti@toscanalifesciences.org

VISIT THE WEBSITE



MASS SPECTROMETRY UNIT

The **Mass Spectrometry Unit (MSU)** is a well-established reality within TLS consisting of a multidisciplinary team which, by combining mass spectrometry with bioinformatic data processing, deals with the cross-sectional analysis of a wide variety of samples to investigate their protein and metabolic profile.

GENERAL DESCRIPTION

The team's know-how enables it to offer highly advanced expertise in the field of studies on Small Molecules (derived from different matrices such as biological fluids, supernatants and plant matrices), biomolecules such as proteins and antibodies, and proteomic and metabolomic analysis applicable to different research fields.

The optimisation and fine-tuning of highly customisable workflows by means of mass spectrometry has led to the activation of numerous collaborations to support internal and external research projects and third-party services, attracting not only Tuscan but also national and international bodies and universities.

The implementation of specific bioinformatic analysis approaches adaptable to different scientific needs completes MSU's analytical capacity.

RESEARCH ACTIVITIES

The main analytical activities include accurate mass measurement of low/medium molecular weight analytes, molecular weight determination of biomolecules (proteins and antibodies), identification of proteins by mass fingerprinting and MS/MS analysis, determination of the drug-to-antibody ratio (DAR), and development of analytical methods with UHPLC-ESI-MS/MS. As far as proteomics is concerning, the development of methods for the identification and quantification (label free or labeled) of proteins by shotgun analysis is set up. Additionally, the MSU deals with analysis and targeted/untargeted UHPLC-ESI-MS/MS of metabolites in different culture media, biological fluids and plant matrices. These activities are supported by qualitative and

quantitative bioinformatic data. Current research activities mainly concern the field of rare diseases and botanicals.

CONTACTS:

Research group leader: Dr. **Laura Salvini**

VISIT THE WEBSITE



MONOCLONAL ANTIBODY DISCOVERY (MAD) LAB

The **MAD Lab** research team at **TLS Foundation** started its activities in 2018 thanks to a **2.5 million euro ERC Advanced Grant** for a research project focused on anti-microbial resistance. The team has quickly grown thanks to various funding sources received for tackling different health challenges (*Shigella*, *Klebsiella pneumoniae* and, more recently, coronavirus SARS-CoV-2). The **MAD Lab** has consolidated skills in the identification and characterization of monoclonal antibodies that can be tested *in vitro* against bacteria and viruses.

GENERAL DESCRIPTION

The **Monoclonal Antibody Discovery (MAD) Lab** is focused on different research projects:

SARS-CoV-2 Project - The project aims at identifying human monoclonal antibodies (mAbs) capable of binding the Spike protein of SARS-CoV-2 wild type and of the recently emerged variants. Once identified, mAbs are tested for their ability to neutralise the authentic virus *in vitro* in a controlled environment (Biosafety Level 3, BSL3). The project started in March 2020 thanks to several funding sources (ERC Advanced Grant vAMRes; Malaria Fund; Ministero della Salute; Raccolta Fondi Coop, and more).

ShiMabs Project - “Human monoclonal antibodies against *Shigella* (ShiMabs), for therapy and vaccine acceleration”, financed by Wellcome Trust and developed in partnership with GSK-GVGH, deals with the discovery of monoclonal antibodies against *Shigella spp.*, a bacterium responsible for bowel infections, especially in children living in the poorest areas of the world. The *Reverse Vaccinology 2.0* strategy has allowed the isolation of specific monoclonal antibodies against this bacterial species through the analysis of memory B cells collected from volunteers vaccinated with experimental *Shigella* vaccines.

***Neisseria gonorrhoeae* Project** - The goal of the project, financed by the ERC Advanced Grant vAMRes, consists in isolating human monoclonal antibodies against *Neisseria gonorrhoeae* from people vaccinated with Bexsero, the vaccine against meningococcal group B disease. The rationale behind this approach is the partial protection against gonorrhoea observed in a retrospective study in people vaccinated with Bexsero (Petousis-Harris et al., 2017). The study, conducted in partnership with GSK, includes the identification of the mAb antigens by using state-of-the-art biochemical technologies, confocal microscopy and structural biology.

***Klebsiella pneumoniae* Project** - The project, funded by Regione Toscana within the CReMeP (Centro Regionale per la Medicina di Precisione) program, aims at isolating human mAbs from patients who recovered from infections caused by the New Delhi metallo-beta-lactamase-producing (NDM) *Klebsiella pneumoniae*, a bacterium that is increasingly resistant to the available antibiotics and can cause nosocomial infections. Efficacy studies have been conducted on the three most potent antibodies to select the most promising monoclonal for the future clinical studies. The preclinical research will continue with the identification of the antigen recognised by the mAbs and their characterisation from a biochemical and biophysical point of view.

mRNA Project - The project entitled “Development of extremely potent human mRNA-encoded monoclonal antibodies against viral and bacterial pathogens” integrates the mRNA technology - validated by the most recent SARS-CoV-2 vaccines - into the Reverse Vaccinology 2.0 approach. Research is funded by the Wellcome Leap R3 Programme “RNA Readiness + Response”.



Monkeypox Project - The project “*Isolation of human monoclonal antibodies against viruses of the poxviridae family for the development of new therapies and vaccines*” started in collaboration with IRCCS Ospedale Sacro Cuore Don Calabria, ASST Fatebenefratelli Sacco, AOU Senese and AOUI Verona. In this study, the technological progress and the extensive experience of the MAD Lab will be exploited to clone B cells from donors recovering from the monkeypox infection or healthy donors vaccinated against smallpox, the reason being that the vaccination can guarantee 85% cross-protection against monkeypox. The final goal of the research is to identify mAbs against the monkeypox virus and other viruses of the Poxviridae family that can be used for therapeutic purposes and for detecting highly immunogenic antigens that would be impossible to detect with the traditional methods.

CONTACTS

MAD Lab Coordinator: **Dr. Rino Rappuoli**

Responsabile del Mad Lab: **Dr. Claudia Sala**

VISIT THE WEBSITE



TUMOUR IMMUNOLOGY UNIT

Established with the support of **MY FIRST AIRC GRANT** (Italian Association for Cancer Research)

GENERAL DESCRIPTION

Tumour Immunology Unit was opened in 2019 owing to the support of the special **AIRC** program that helps young researchers in establishing independent laboratories. My First AIRC project “Dissecting ILT3 biology to understand tumor suppression in B cell chronic lymphocytic leukemia”, hosted in TLS lab in Siena, is conducted by Dr. Anna Kabanova as Principal Investigator (PI).

RESEARCH ACTIVITIES

The research project aims to get a deeper understanding the biology of autoreactive and ageing B cells to harness this knowledge for the treatment of B cell-related disorders. Specifically, we currently focus on studying one of the most frequent tumours of B lymphocytes, B-cell chronic lymphocytic leukemia (CLL), which is mostly found in elderly patients and is characterized by highly aberrant gene expression profiles. Our knowledge on the functional outcome of this changes is relatively fragmentary, hence we would like to fill in this scientific gap.

Our laboratory combines state-of-the-art imaging, -omics technologies and gene editing approaches *in vitro* and *in vivo* to tackle two specific questions. First, we would describe better molecular vulnerabilities of CLL cells, with the ambition to improve suboptimal therapeutic schedules that are currently in use. Second, we are particularly interested in characterizing CLL-specific tumour suppressing gene networks that counteract tumour development in indolent forms of CLL. This study may form a rationale for the development of novel therapeutic approaches to treat aggressive CLL.

TUMI team is also particularly interested in applying **mRNA** technologies as immunotherapeutics to treat CLL.



To cultivate inner expertise and learn about this cutting-edge versatile technology, we are currently collaborating with the **Monoclonal Discovery lab**, lead in TLS by Dr. Rino Rappuoli and coordinated by Dr. Claudia Sala, for a project funded by the Wellcome Leap R3 consortium.

AIRC GRANT

Duration: 5 years
Start date: July 2019
Amount: 500.000 Euros

CONTACTS

Principal Investigator: **Dr. Anna Kabanova**

[VISIT THE WEBSITE](#)



VACCIBIOME PROJECT

ERC advanced grant - “Cancer Vaccines and Gut Microbiome: an Integrated Approach to Optimize Cancer Immunotherapy”

GENERAL DESCRIPTION

The project aims at investigating the role of gut microbiome in determining the efficacy of cancer vaccines. The research project, awarded to Prof. **Guido Grandi**, University of Trento, has a term of five years and benefits from 2,5 million Euros of funding. TLS hosts some labs and scientists and contributes to the development novel cancer vaccines and the analysis of immune responses in different animal models.

RESEARCH ACTIVITIES

The project intends to shed light on the interplay between cancer immunity and gut microbiome as a way to optimize personalized cancer vaccines and immunotherapy. The project originates from two milestone discoveries. First, to be effective cancer immunotherapies have to target CD4+/CD8+ T cell neo-epitopes, which originate from tumour mutations. Second, the gut microbiome influences the effectiveness of anti-PD-1/PD-L1 antibody immunotherapy both in animal models and in humans. We also recently showed in a mouse model that oral gavages with Bifidobacterial cocktails improved the therapeutic power of neo-epitope-based cancer vaccines. How microbiome affects anti-cancer immunity has not been fully elucidated yet and a deep understanding of the underlying mechanisms has the potential to substantially improved cancer immunotherapy. The ultimate goals are: 1) to provide new criteria for neo-epitope selection in personalized cancer vaccines, 2) to develop prognostic tools based on microbiome analysis, and 3) to define microbial species to be used as immune-potentiators in patients undergoing cancer therapy.

EUROPEAN GRANT

Duration: 5 years

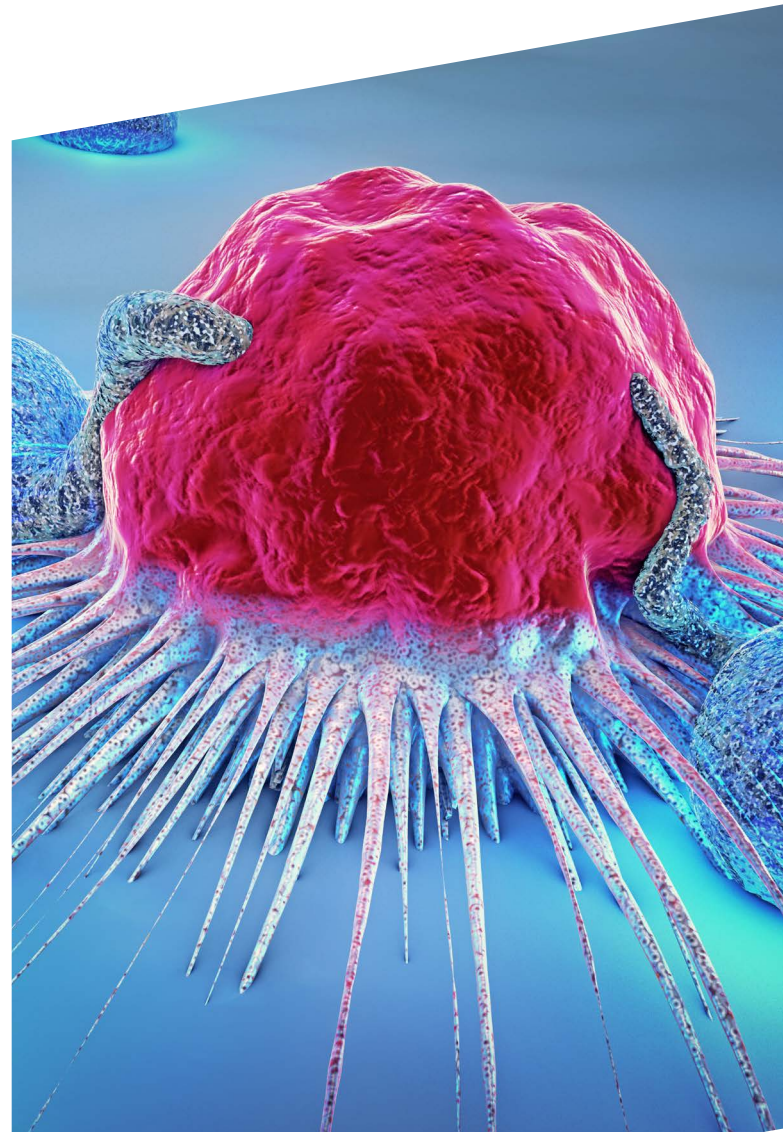
Starting date: September 2019

Total amount: 2,5 Million Euros

CONTACTS

Principal Investigator: Prof. **Guido Grandi**

[VISIT THE WEBSITE](#)







EDUCATION AND
HIGH QUALIFIED SKILLS
IN THE LIFE SCIENCES

VITA FOUNDATION

“NEW TECHNOLOGIES FOR LIFE” TECHNICAL VOCATIONAL SCHOOL

The “New technologies for Life” Technical Vocational School - Istituto Tecnico Superiore (ITS) “Nuove tecnologie per la Vita” - was created to train highly specialized professional figures in a strategic sector of the regional economy, the Life Sciences. The objective of the ITS, which operates throughout the entire Tuscany region, is to fulfill the demand of companies with new high-level technical and technological expertise in a sector that sees Tuscany among the top three Italian regions in terms of the presence of companies and employees as well as turnover. The “New technologies for Life” ITS Foundation, specifically, is led by the ITIS “Sarrocchi” in Siena and counts 21 partners including the TLS Foundation (coordinator), the Tuscan Universities of Siena, Pisa and Florence, the provinces of Siena and Pisa, the municipality of Siena, the metropolitan city of Florence, the “Cellini” Institute of Florence, the industrial associations of Florence and southern Tuscany, and the training agencies Toscana Formazione, ASEV, Confindustria Toscana Servizi and Pon-Tech. Several leading companies in the Tuscan chemical, pharmaceutical and biomedical sector are among the companies directly involved in the Foundation and strategic for the training outcomes of the TVS: GSK, Menarini, Kedrion, Corima - Marchesini Group, and Dekam E.L.A.

ACTIVITY

The “Life” Technical Vocational School [ITS “Vita”] offers young high school graduates two-year courses (for a total of 1,800/2,000 hours) constructed on the basis of the needs and requirements of companies: at least 30% of the duration of the training course is performed at a company, internships abroad are promoted and at least 50% of the faculty comes from the professional world. The courses will be developed in three areas of the Tuscan production chain: industrial and environmental biotechnologies, the production of diagnostic and biomedical equipment and devices, and medical nanotechnologies.

Furthermore, the ITS VITA Foundation offers short courses of high-level specialization (for a total of 600/800 hours) focused on life sciences such as: clinical studies project management; Informatics 4.0 (medical area); Pharmaceutical products commercialisation.

CERTIFICATIONS

The “New technologies for Life” Technical Vocational School is certified from M.I.U.R. for the teacher training and for the high school graduation (V EQF Level) and from Regione Toscana, (d.G. n. 1407/2016), as training agency. Fondazione Vita has the Certification of quality management system ISO 9001/2015. Finally Fondazione Vita is a partner of excellence Center for Advanced Robotics and enabling digital Technologies & Systems 4.0 - ARTES 4.0.

KEY PARTNERING OPPORTUNITIES

- Scientific collaboration for dissemination
- Training
- High School

OTHER INFO:

Date of foundation: August 2015
Company Size: 6 employees

Contacts:

Address: Via Fiorentina 1, 53100 Siena - Italy
Tel. +39 0577 231298
info@itsvita.it
www.itsvita.it



V.I.T.A. LAB

VIRTUAL INTERACTION FOR TRAINING AND ANALYSIS LAB

The ITS VITA Foundation makes available to its students two highly technological laboratories:

- **V.I.T.A. Lab - Virtual Reality (VR) and Augmented Reality (AR) laboratory;**
- **V.I.T.A. Lab 2.0. - in addition to AR and VR technologies also includes IT, Robotics and Prototyping classrooms.**

The V.I.T.A. Lab 2.0, funded by POR CREO FESR 2014-2020 - ACTION 2.3.1, aims to train future technicians in an Industry 4.0 key through highly technological tools, software applications and immersive reality to encourage and enhance the learning of skills technical and professional requirements of the labor market.

It contributes to increasing the quality of the training offer of ITS courses, employment prospects, competitiveness and innovation of companies in the regional and national territory. A unique opportunity that allows students to work actively in the field with state-of-the-art tools, putting the theoretical foundations of the course into practice. Thanks to software applications and immersive reality, in fact, the student will be able to interact in a simulated environment in total safety, becoming an active part of the Learning by doing process: a professional training activity to train 4.0 technicians. The project stems from the need to strengthen and retrain, using these cutting-edge technologies, the current training and teaching offer and to promote an open territorial laboratory with the aim of strengthening the synergies between ITS, educational Institutions, Universities and public and private bodies to provide an effective and immediate response to the transition from the world of training to that of work.







THE BIO-INCUBATOR

THE BIO-INCUBATOR

Today, the TLS bio-incubator hosts 54 different tenants:
23 companies focused on R&D and services;
12 public or private research groups or foundations;
19 affiliated companies.

54
TENANTS



ECOSYSTEM

The number of hosted companies is increasing in 2022, 3 new tenants (incubated, affiliated companies and research groups) entered the TLS bio-incubator.



EMPLOYEES? HIGHLY **QUALIFIED** AND **FOCUSED** ON R&D

Of the 638 employees (TLS Foundation and bioincubator), around 80% have at least a university degree. In particular, 50% of the TLS Foundation' employees is involved in R&D activities.



564

COLLABORATIONS
AND LICENCE
AGREEMENTS
FROM 2007



A SOLID **NETWORK** OF **COLLABORATION**

Since 2007, incubated and affiliated companies and research groups have been able to sign 564 collaborations and licence agreements with third parties at national and international level. 23 new collaborations and licence agreements were signed in 2022.

PRODUCTS ON THE **MARKET**

The products launched on the market since 2007 are 273. Most of them are diagnostic kits, ICT products and medical devices.



273

THE PRODUCTS
LAUNCHED

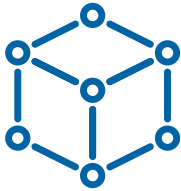
**GREAT RESULTS FOR
OUR COMPANIES**

The overall turnover by hosted companies and research centers exceeds 44 Million €, +14% over 2021. Investment attracted since 2007 are 125.2 Million €.



44.3
MILLION TURNOVER
+14%

101
TYPOLOGIES
OF SERVICES



AN EVER-EXPANDING SERVICE PORTFOLIO

Along with the increasing number of tenants, the service portfolio is evolving towards new fields like environment, clinical trials, serological tests, data management and mobile solutions for the medical care sector.

**WHERE ARE INVESTMENTS
COMING FROM?**

The increasing trend of the turnover when compared to the overall investment attracted is confirmed for 2022. From the 47% of 2021 to 52% of 2022. The growth is even more significant (57%) if we consider the overall investments attracted only by enterprises from 2007.



20.4 MLN €
INVESTMENTS
ATTRACTED IN 2022

The performance indicators are referred to the 2022 fiscal year profit



INCUBATED COMPANIES

FOCUSED ON RESEARCH AND SERVICES

ACHILLES VACCINES S.R.L.

AchilleS Vaccines is a biotechnology company based in Siena (Italy) engaged in the development of new products to address some of today's most crucial health problems, including antibiotic resistance and emerging infectious diseases and with a strategic focus on health programs on the African continent and LMIC. AchilleS Vaccines is incubated in TLS since 2018.

ACTIVITY

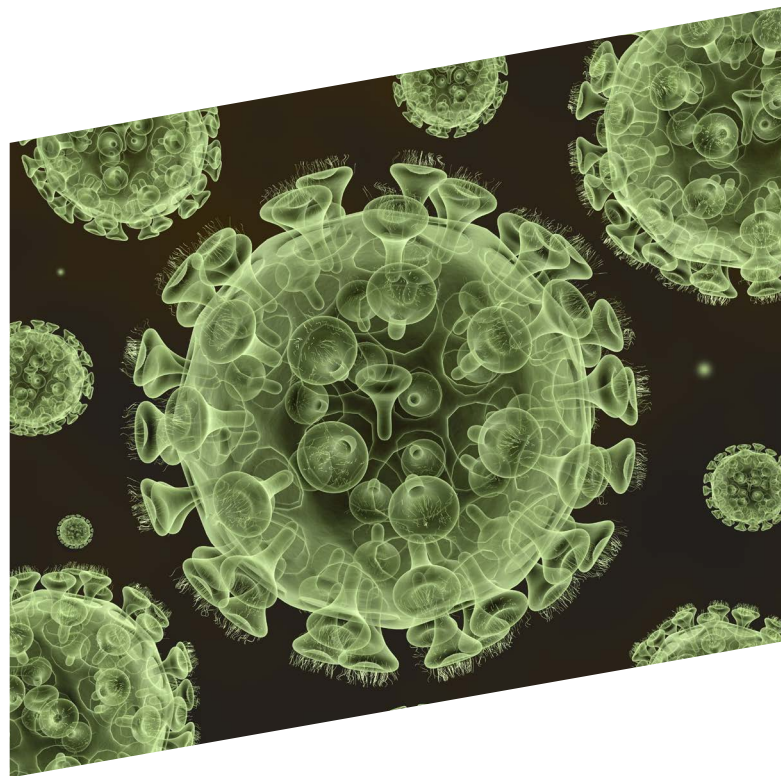
AchilleS Vaccines' goal is to develop safe and potent vaccines and monoclonal antibodies through scalable, sustainable and cost-effective development and production processes. The company uses disruptive technology platforms, a large network of multidisciplinary, national and international partners, with the support of forward-looking European institutions.

The AchilleS Vaccines LAB 4.0 represents a new paradigm for the initial development of new biopharmaceutical products and will open new opportunities in the pharmaceutical industry. We aim to expand the "LAB 4.0 vision" and the innovative approach of "development by design" towards new methodologies by combining "development by design" with a "biopharmaceutical development by simulation" starting from the laboratory stage and ending at the clinical stage, covering the whole cycle of product development.

Products: Vaccines for new or emerging infectious diseases; Innovative vaccines to substitute sub-optimal existing ones; Vaccines against antimicrobial resistance and monoclonal antibodies for infection diseases.

TECHNOLOGY AND PATENTS

AchilleS Vaccines leverages on 2 technology platforms: mOMV - A platform which gives significant development advantages, including large-scale, cost effective production (very high process yield and very low COGS) in addition to a sophisticated molecular manipulation to display foreign



antigens and a self-adjuvanticity by inclusion of bacterial component. mOMV is tested in recent clinical trials and demonstrated good tolerability and high immunogenicity. Lab 4.0 - An innovative Lab design assuring data quality and integrity, fully IoT integrated instruments, use of Big Data, Open Data, Data Curation, Deep Learning, Machine Learning, A.I. and DoE driving AchilleS Vaccines development as well as Advanced Project Management methods.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration

OTHER INFO:

Date of foundation: 2017

Contacts:

Strada del Petriccio e Belriguardo 35, 53100 Siena -Italy
info@achillesvaccines.com
www.achillesvaccines.com

AMBRA

Ambra was born from the encounter between training, research and entrepreneurial experiences in the cannabis sector. The goals are multiple. That of supporting the sector by providing services with facilitated entry, through training, consultancy and digital innovation practices. The study of the cannabis phytocomplex and of the interaction between the different cannabinoid, terpene, flavonoid molecules. The development of machinery and natural processing techniques (without solvents) capable of keeping that phytocomplex unaltered.

ACTIVITY

Ambra is a company specialized in the management of Cannabis Sativa L., with a strong commitment to medical research, quality control and the development of solvent-free extraction techniques. Our quality control covers all the specifications of the plant and the different needs of the sector, such as certifications and marketing. Our R&D division focuses on product development and the design of solvent-free processing plants, suitable for the extraction and logistics needs of our partners. This allows us to conduct observational and preclinical research on our products.

TECHNOLOGIES AND PATENTS

We are one of the first Italian analysis laboratories to have many accredited tests for cannabinoids on plant and complex matrices. Our research on quality control extends to the evaluation of the naturalness of products, in particular oils and extracts, through the use of innovative indices in the sector. Our R&D division works to increase the effectiveness and efficiency of natural transformation systems, starting from the analysis of raw materials and the need to manage cultivation in a regenerative way, following integrated supply chains with low environmental impact.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: October 2019

Contacts:

Ambra srl
Headquarter: Strada del Petriccio e Belriguardo 35, 53100 Siena SI
Tel: 0577 381421; mob: 347 3062741
analisi@ambra.life
info@ambra.life
www.ambra.life



DICOFARM S.P.A.

Dicofarm, established in 1977 in Rome, is active in four major medical areas: gynecology, gastroenterology, neonatology and pediatrics. Since 2002, with the creation of AG Pharma, has an internal division between AG Pharma and Dicofarm. The company carries out clinical researches on its products and guarantees certified products with international patents and with the approval of opinion leaders and researchers from major universities worldwide.

ACTIVITY

Principal activities are organised on two areas: adult products in gastroenterology, gynecology and urology (AG Pharma) and products focused on pediatrics and neonatology area (Dicofarm). In January 2012 Dicofarm opened a new lab in the TLS incubator with the aim to pursue R&D activities, in the context of anti-inflammatory and immunomodulatory sector, starting from cellular fractions of probiotic bacteria with proven effectiveness.

POTENTIAL (IN 1-3 YEARS)

Innovative products' development for the treatment of viral and bacterial infections.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration

OTHER INFO:

Date of foundation: 1977

Company Size: 170 (DICOFARM Group)

Contacts:

Headquarter: Via del Casale della Marcigliana, 29 - 00138 Rome - Italy

Tel: +39 06 8856131; fax: +39 06 8889334

info@dicofarm.it

www.dicofarm.it



DIESSE DIAGNOSTICA SENESE S.P.A.

DIESSE Diagnostica Senese SB S.p.A. is an Italian company with an integrated and entirely inhouse production of diagnostic solutions for immune system. Its headquarters are in Siena in the DIESSE BIOTECH CAMPUS, the biggest R&D and biotech production plant dedicated to IVD in Italy and among the biggest in EU, where the design and implementation of tests and new automated diagnostic detection tools meets Italian design and cutting-edge technology. The company has a global presence in over 100 countries and since its foundation in 1980 it has developed, produced and marketed innovative diagnostic systems primarily in the field of immunodiagnostics and automatic measurement of erythrocyte sedimentation rate (ESR).

ACTIVITY

A mainstay of DIESSE strategy is the in-house production of most of the basic biologic components of the diagnostic kits (polyclonal and monoclonal antibodies, native and recombinant antigens), along with the capacity of designing instruments and dedicated plastic devices in order to develop close automated systems. The R&D division of DIESSE S.p.A. creates diagnostic systems based on the development of biochemical and immunometric assays and instrumentation for the automation of analyses, collection and data processing. The main activity of DIESSE in TLS is the development of recombinant antigens and monoclonal antibodies to be used in kits for the serological diagnosis of various infectious diseases based on the detection of IgG, IgA and IgM antibodies, and for the direct search for antigens from pathogenic microorganisms in biological samples.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration

OTHER INFO:

Date of foundation: 1980 Company
Size: around 200 employees

Contacts:

Strada dei Laghi 39, 53035 Monteriggioni (SI) - Italy
Tel.+39 0577 309554
customer care@diesse.it
www.diesse.it



EPIGEN THERAPEUTICS S.R.L.

Epigen Therapeutics is a biopharmaceutical company whose main office is located in Friuli-Venezia Giulia at the Polo Tecnologico of Pordenone (Italy). The company is dedicated to the research and development of therapeutic approaches and innovative diagnostic tools in the immuno-oncology field to be made available to cancer patients. Epigen Therapeutics has a Research & Development Unit at the TLS incubator.

ACTIVITY

Translational skills of Epigen Therapeutics are based on expertise in cancer epigenetics, immunology and immunotherapy. Core activity: to develop and bring to the clinic a proprietary epigenetically-based, autologous, multivalent cellular vaccine for cancer treatment (DeMethAVax).

Other activities: development of pre-clinical (in vitro cell cultures and murine models) and clinical projects in Immuno-Oncology in collaboration with industrial and academic partners; services delivery for: immunomonitoring of cancer patients; epigenetic, phenotypic and molecular analyses of prognostic/predictive biomarkers; scientific consultancy on novel immuno-therapeutic strategies.

TECHNOLOGY AND PATENTS

“Antigen presenting cells, method for their preparation and their use for cancer vaccines” PATENT NUMBER PCT/IT2002/000488.

POTENTIAL (IN 1-3 YEARS)

Develop and bring to the clinic the proprietary epigenetically-based, autologous, multivalent cellular vaccine for cancer treatment (DeMethAVax): GMP validation procedures for vaccine set-up; obtaining clinical transferability authorizations; identification of the proper manufacturing site; first-in-man clinical study development.



KEY PARTNERING OPPORTUNITIES

- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2011
Company Size: 2 employees

Contacts:

c/o Polo Tecnologico PN - Via Roveredo 20/b - 33170 Pordenone, Italy
Tel. + 39 0434 504411 - Fax: + 39 0434 504410
c/o MRC - Fondazione TLS , Strada del Petriccio e Belriguardo 35,
53100 Siena Italy
Phone +39-0577381375
For physician related inquiries: clinical@epigentherapeutics.com
For investor related inquiries: legal@epigentherapeutics.com
For media related inquiries: info@epigentherapeutics.com
www.epigentherapeutics.com

KEDRION BIOPHARMA

Kedrion Biopharma is amongst the top plasma-derived therapeutics companies worldwide, and has significant experience in the development, manufacturing and distribution of plasma-derived products. Headquartered in Tuscany, it distributes its products in more than 100 countries worldwide and has production sites in Italy, Hungary, the United States and Canada.

ACTIVITY TIPOLOGY/PRODUCTS/SERVICES

Kedrion collects plasma from which it produces therapeutic proteins. Kedrion's products (more than 20 on the market) represent life-saving treatments for rare diseases such as Immunoglobulins for Primary Immunodeficiencies, Coagulation Factors for Hemophilia and Plasminogen for Plasminogen Deficiency. Kedrion also manufactures and/or distributes products in the anti-infectives (Hyperimmune Immunoglobulin for Rabies) and critical care (Albumin).

TECHNOLOGY AND PATENTS

Kedrion's industrial platform focusses on the fractionation of plasma to purify therapeutically relevant proteins by two methods. The first, based on the Cohn's plasma fractionation process followed by customized chromatography, can handle large-scale purification (1000s liters of plasma) and is employed for the majority of Kedrion's products. The second, based on an alternative technology (affinity chromatography) has been acquired in 2021 and is a smaller scale process (100s liters), currently employed to produce Ryp plazim®, a plasma-derived Plasminogen. Kedrion is the holder of 19 patents, the majority on the purification of proteins from plasma for therapeutic purposes.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

In Italy, Kedrion is a partner of the National Health System, which it concretely supports in the pursuit of self-sufficiency in the supply of plasma-derived products.

Date of foundation: 2001

Employees: 2,700 worldwide

Contacts:

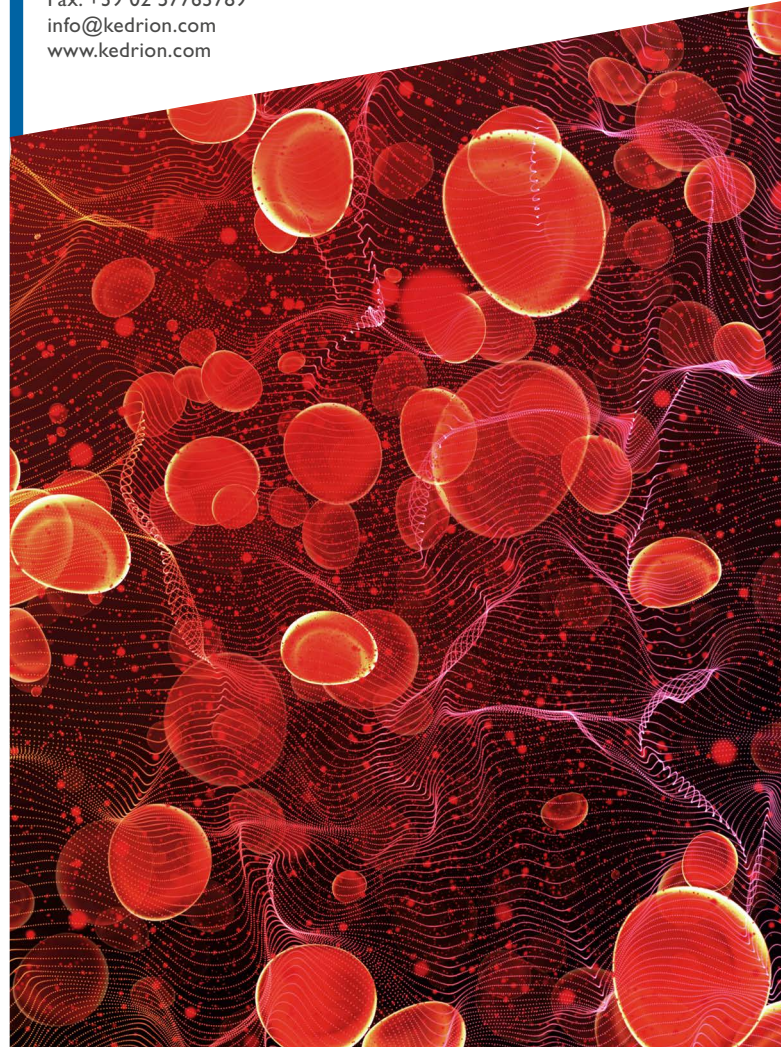
Headquarter: Loc. Il Ciocco, Castelveccchio Pascoli
55051 Barga, Lucca (Italy)

Tel: +39 0583 767100

Fax: +39 02 57763789

info@kedrion.com

www.kedrion.com



LINNEUS CONSULTING SERVICES STP A RL

Linneus is a team of professionals who provide technical-regulatory consultancy (national, EU and non-EU) to companies in the agri-food, pharmaceutical, veterinary, chemical and cosmetic sectors (both manufacturing and purely commercial companies).

ACTIVITY TIPOLOGY/PRODUCTS/SERVICES

Thanks to the scientific know-how of the team (all graduates in scientific faculties such as CTF, Pharmacy and Biology), with particular expertise on Botanicals, Linneus provides dynamic and personalized assistance in relation to the specific needs of customers, covering all sectors of the supply chain that they range: from the procurement of raw materials to the production and marketing of products based on or with plant extracts.

KEY PARTNERING OPPORTUNITY

- scientific collaboration
- strategic partnership

OTHER INFO:

Date of foundation: 14.07.2020

Company size: Small company

Contacts:

Rita Pecorari CEO

info@linneus.it

www.linneus.it



LONZA

Lonza is a preferred global partner to the pharmaceutical, biotech and nutrition markets. We work to enable a healthier world by supporting our customers to deliver new and innovative medicines that help treat a wide range of diseases. We achieve this by combining technological insight with world-class manufacturing, scientific expertise and process excellence. Our business is structured to meet our customers' complex needs across four divisions: Biologics, Small Molecules, Cell & Gene and Capsules & Health Ingredients. Our unparalleled breadth of offerings across divisions enables our customers to commercialize their discoveries and innovations in the healthcare industry.

Founded in 1897 in the Swiss Alps, today, Lonza operates across five continents. With approximately 17,500 employees (full-time equivalent), we comprise high-performing teams and individual talent who make a meaningful difference to our own business, as well as to the communities in which we operate. The company generated sales of CHF 6.2 billion with a CORE EBITDA of CHF 2.0 billion in Full-Year 2022. Find out more at www.lonza.com

ACTIVITY

Exosomes and other extracellular vesicles (EVs) are emerging as new therapeutic and/or drug carrier modalities with the potential to overcome or, at least complement, the existing platforms for cell and gene therapy. Incorporated within the Cell and Gene Lonza Business Unit, the newly established unit in Siena will provide dedicated services for EV characterization, assay and process development for the manufacturing of EV-based therapies. A dedicated team of 12 EV experts will support biotech and pharma companies to bring their EV therapies to life.

TECHNOLOGIES AND PATENTS

The Unit will leverage intellectual property and technologies that have been developed within Lonza or

accessed through recent M&A to serve clients and, at the same time, drive innovation to advance the whole EV field in the coming years.

POTENTIAL (IN 1-3 YEARS)

The Unit has the objective to organically grow in a market that is still in its infancy and will work to bring products on the path to commercialization in the near future.

KEY PARTNERING OPPORTUNITY

- scientific collaboration
- strategic partnership
- grant search

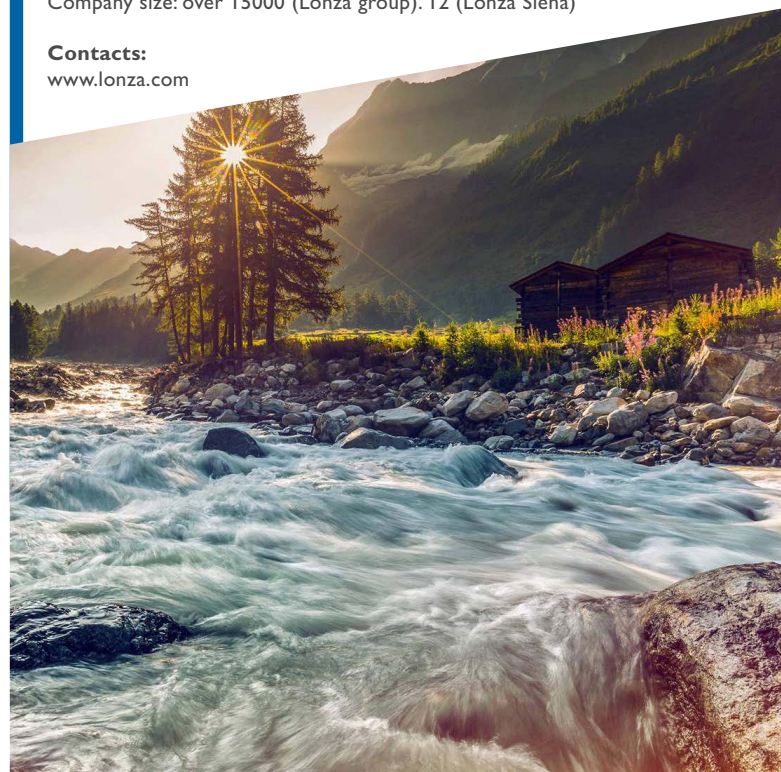
OTHER INFO:

Date of foundation: 1897 (Lonza group), 2021 (Lonza Siena)

Company size: over 15000 (Lonza group). 12 (Lonza Siena)

Contacts:

www.lonza.com



MATERIA MEDICA PROCESSING S.R.L.

Materia Medica Processing is a new company dedicated to the extraction, purification and analysis of hemp. Our mission reflects the increasing need for scientific knowledge in the field of healthcare and wellness products in a market characterised by evolved consumers. Our staff has backgrounds in chemistry and are experienced in pharmaceutical R&D, phytochemical analysis and the purification of natural molecules

ACTIVITY

Materia Medica Processing is devoted to the support and development of standardized processes that hold great technological and scientific value in the field of phytotherapy, with a particular focus on the chemistry of phytocomplexes, including characterization and extraction optimization. The laboratory is fully equipped for the scientific investigation of secondary metabolites and contaminants found in botanical material. Furthermore, Materia Labs is the only dedicated cannabis testing facility in Italy. We monitor every phase of the extraction and purification in compliance with national and international standards: we obtained ISO 9001:2015 and GMP cosmetics 22716: 2008 certifications.

POTENTIAL (IN 1-3 YEARS)

The cannabis industry is one of the fastest growing industries in countries where medical and adult use have been legalized. There is significant space for research, product development and business opportunities, but more importantly there is an urgent and unmet medical need. We are active in processing extracts and in analytical service. We have the potential to fully manage our operations out of a GMP pharma environment.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership



OTHER INFO:

Date of foundation: 2018

Company Size: 3 employees plus a CTO a CEO and a CFO

Contacts:

Headquarter: Via della Rena 20, 39100 Bolzano

Tel. +39 057 738 1420

Laboratory: Via Fiorentina 1, 53100 Siena

Tel. +39 057 7231294

info@materiamedicaprocessing.eu

materiamedicaprocessing.eu

MICROBIOTEC S.R.L.

A knowledge-based SME founded in 2009, with headquarters in Monteriggioni and Office/Laboratory at the “Toscana Life Sciences” (TLS) Science Park since 2011. Microbiotec is a Start-up company based on the technology and innovation developed at the Laboratory of Molecular Microbiology and Biotechnology of the University of Siena. The company works in the fields of microbial biotechnology, probiotics, vaccines and diagnostics.

ACTIVITY

Current research activities include projects on Microbial Biotechnology with focus on bacterial lysates, probiotics based on Lactobacilli, vaccines formulations and new diagnostics. From 2015, Microbiotec has implemented several methods for transcriptome analysis of RNA Sequencing data for study the human immune response to Ebola vaccine.

Microbiotec has been Partner in many EU Projects as CHAARM (Combined Highly Active Anti-Retroviral Microbiocides), ADITEC (Advanced Immunization Technologies) and MOTIF (Microbicide Optimization Through Innovative Formulation). Actually is engaged in VSV-EBOVAC (Vaccine safety and immunogenicity signature of human responses to VSV-ZEBOV), VSV-EBOPLUS (Systems analysis of adult and pediatric response to the VSV-ZEBOV Ebola vaccine) funded by IMI2 and VacPath (Novel vaccine vectors to resist pathogen challenge) in the Marie Skłodowska-Curie Innovative Training Networks. Recently, the company started the Quality Management Systems and obtained the quality certifications for UNI EN ISO 9001:2015, UNI EN ISO 13485:2016 for Medical Devices and GMP for Dietary Supplements.

TECHNOLOGY AND PATENTS

Technologies include laboratory for bacteriology and biotechnology and basic biochemistry. Other relevant

instruments include a benchtop Lyophilizer and an High Pressure Homogenizer. Computers with appropriate programs are also available for bioinformatics analysis of Next Generation Sequencing (NGS) data.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership

OTHER INFO:

Date of foundation: 2009

Company Size: 3 employees

Contacts:

Strada del Petriccio e Belriguardo, 35, 53100 Siena

Tel. +39 0577 381303

microbiotec@microbiotec.eu



PHARMA INTEGRATION S.R.L.

Pharma Integration is an innovative Italian company founded in 2016 thanks to the expertise and inventiveness of highly specialised Italian technicians and the support of multinational pharmaceutical companies. Its goal is to help pharmaceutical companies anticipate the world of tomorrow by creating the best fill-finish systems to deliver life-saving drugs within the shortest possible time.

Today the company is led by a talented young team specialised in robotics, artificial intelligence, and pharmaceuticals.

TECHNOLOGY

Pharma Integration designs and develops cutting-edge systems dedicated to small volume fill-finish for next-generation drugs. Services, technology, and products are offered worldwide.

The systems are characterised by the massive use of robotics: 6-axis robotic arms are able to handle each and every phase of the fill-finish process in complete autonomy, without requiring any human intervention and at the same time guaranteeing great productivity, extreme precision and absolute repeatability of actions.

ACTIVITY

Pharma Integration stems from the need to deeply renew the pharmaceutical process in order to make it safe and efficient, flexible and capable of facing the new challenges that arise every day in the biopharmaceutical field, providing pharmaceutical companies with fill-finish systems as innovative as their medicines and making Pharma 4.0 a present reality - not just a future goal.

In 2016, Pharma Integration started the design and prototyping of the systems, with the aim of renewing the

pharmaceutical process to make it safer and more efficient at the same time, at a lower cost than traditional “elephant” lines. After 4 years of development and investments, in 2021, the company began the industrialisation of Pharma Integration systems, proposing an Off-the-Shelf approach that allows pharmaceutical companies to get to market faster.

OTHER INFO:

Date of foundation: 2016

Company Size: 28 employees

Contacts:

Strada Del Petriccio e Belriguardo 35, 53100 - Siena (Italy)

Tel. +39 0577 381201

info@pharma-integration.it

www.pharmaintegration.it



PIERRE IMPIANTI

Pierre Impianti is a company that has been offering design, set-up and technical assistance services for chemical and scientific research laboratories, for over 30 years. The company is incubated at the Toscana Life Sciences (TLS) Foundation and it is specialized in the creation of technologically advanced systems and in the setting up field of the layout of the technical furniture laboratory; starting from the study of functionality and equipment, adapted to the specific needs of the customer. The company also offers technical assistance for scientific equipment such as chemical and biological hoods, isolators, incubators and centrifuges. Since its creation, Pierre Impianti has developed a specific know-how in the field of laboratory reconfiguration, in the integrated hi-tech equipment logistics and in the realization of utilities intended to supply new equipment projects.

ACTIVITY

Pierre Impianti makes ordinary and extraordinary maintenance activities and periodic checks of scientific equipment and collective protection devices (DPC), to ensure maximum safety and efficiency of the machineries. Moreover, Pierre Impianti offers periodic equipment sanitization services and workplaces made with: Bioquell technology that use Vaporized Hydrogen Peroxide (HPV); environmental sterilization made through the use of Ozonizers-Ionizers and, it also provides to create sterilization systems by using fixed or mobile systems of germicidal lamps, for rooms that are at risk of biological contamination. Within TLS and its bio incubator, this company oversaw the setting up of laboratories, built inside the “building 36” and in the “MRC building” too. In addition to the general maintenance, it also makes periodic checks and reconfigurations of the technical furniture and all utilities at the service of the companies that are affiliated with the TLS Foundation.



OTHER INFO:

Contacts:

Operational headquarters:
Via Fiorentina 1, 53100, Siena
pierre.impianti@virgilio.it

POLO GGB S.R.L

Polo GGB is a highly specialized company working in the Life Sciences field to develop and promote Genomics and Genetics services to the academic and public/private sector. The Headquarters and the Genomics & Bioinformatics laboratory are located in Siena, at the MRC of TLS, while Terni hosts an Immunoassay Laboratory and a state-of-the-art mosquito confined-release facility for Ecological and Genetics studies to control vector borne diseases. The company has been expanding in recent years to incorporate/include diagnostic services. **Polo GGB** can now count on two Diagnostics laboratories (in Siena and Abano Terme) and two sampling hubs. A team of more than 30 young and highly qualified members of staff, mostly PhD researchers, with expertise in different areas represent Polo GGB and its extraordinary environment where it is possible to continuously learn and innovate.

ACTIVITY

The activities of **Polo GGB** can be classified in two main areas: Services and Research both operating in the Genetics, Genomics and Diagnostics fields. The Genomics & Bioinformatics Laboratory is committed to delivering next-generation sequencing services and bioinformatics services for research and diagnostic applications. The laboratory is equipped with the most innovative Next generation Sequencing equipment based on the Illumina and Nanopore technologies and with an outstanding Bioinformatics capability for the processing of biological data. The Ecology & Genetics Laboratory is engaged in cutting-edge research for the control of vector-borne diseases, with a particular focus on Malaria and on the development of genetically modified mosquitoes for its control. The activities of the Immunoassay Laboratory focus on the production of custom monoclonal antibodies (MAb) and ELISA immunoassays for Research purposes. Finally, the Diagnostics laboratories of Siena and Abano carry out numerous tests and examinations, from COVID-19

diagnostic tests, laboratory medicine and genetic analyses. Polo GGB collaborates with hospitals and national health centers for the validation of new diagnostic assays, which Polo GGB designs and implements in house to constantly update its diagnostic offer.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership

OTHER INFO:

Date of foundation: 2011

Company Size: more than 30 employees

Contacts:

c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy
Tel. +39 0577 381312

c/o Laboratorio di Biotecnologie - Via Mazzieri SNC, 05100 Terni, Italy - Tel. +39 0744 220112 / +39 0744 202816

info@pologgb.com

www.pologgb.com



SIENA IMAGING

Siena Imaging is hosted in TLS since June 2017 when the company was founded as a spin-off of the neuroimaging research group at the Siena University. The idea to start a business based on the high level proprietary technology, was born after more than 15 years of research developed inside the academic laboratories. Founders and shareholders are: Nicola De Stefano full professor of Neurology at the Department of Medical Science, Neuroscience and Chirurgia; Giacomo Demurtas expert in computer science; Marco Battaglini Researcher at Siena University and CEO of the newborn company.

ACTIVITY

Hospitals and pharma companies, quantitative indexes of tissue damage from NMR images of the brain. Moreover customers can get access to dedicated software for monitoring and diagnoses of neurodegenerative and autoimmune diseases like Alzheimer and Multiple Sclerosis. In particular the company is working at the development of a **Web 2.0 platform** for the centralized analysis of NMR images coming from clinical trials aimed at the measurement of brain damage.

The company develops its software in collaboration with the most important neuroimaging centers in the world like the one in Oxford (UK) and can count on a large network of national and international pharma companies and information technology centers.

POTENTIAL (IN 1-3 YEARS)

1. Siena Imaging, in addition to performing the Central Readers activities in clinical trials, aims to become a Contract Research Organization (CRO).
2. The company wants to make the image visualization and management platform available to neurologists and neuroradiologists.



KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- grant search

OTHER INFO:

Date of foundation: 2017

Company Size: 15 employees

Contacts:

c/o Toscana Life Sciences Foundation - Via Fiorentina 1, 53100 Siena - Italy

Tel: +39 0577 231211

www.sienaimaging.it

TECHNOLOGY FOR ALL - T4ALL S.R.L.

Technology for All - T4ALL is a private company providing R&D and IT solutions in a widespread set of domains, including some relevant socio-economic fields such as healthcare, remote monitoring tourism, cultural heritage and mobile services.

Founded in 2008 as a spin-off company of University of Siena - Dept. of Information Engineering - since 2010 the company has been incubated into Toscana Life Sciences Technological park and since 2018 has been listed in the innovative SMEs' special register, hold by Italian Ministry of Economic Development.

ACTIVITY

The company's key activities refer to two different business units:

The **Digital Health Division** provides solutions for remote monitoring of vital signs and telemedicine, supporting ageing people and patients affected by chronic diseases. The company is also engaged in clinical risk management, addressing secure identification of patients in the hospital setting.

The **ICT Division** promotes the adoption of smart technologies in Web and Mobile service scenarios, with focus on user engagement (proximity marketing, augmented reality, digital storytelling), mobility and sustainable development, Beacon and RF-IId technology and wireless sensor networks.

POTENTIAL (IN 1-3 YEARS)

- Double digit growth in turnover in the last 2 years, the company is gathering new projects and customers to increase market penetration.
- Unique Italian certified distributor of the Laserband solution for patient identification.
- Design of a smart and sustainable platform based on wearable technology to support deaf women in a sound oriented world. The company has designed the

QUIETUDE integrated platform, a collection of interactive jewellery, able to filter, recognise and notify environmental sounds through vibration, dynamic lights and shape changes. By wearing these accessories, deaf women will be able to perceive voices and other sounds through their body.

KEY PARTNERING OPPORTUNITIES

- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2008

Company Size: 6 employees

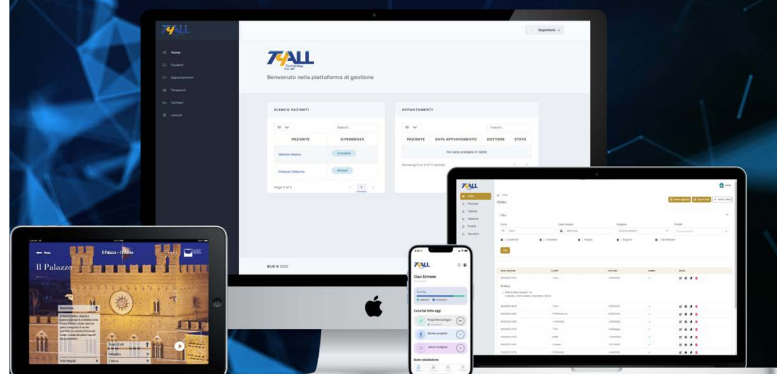
Contacts:

c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy

Tel. +39 0577 231257

info@t4all.it

www.t4all.it



VISMEDERI GROUP

The **VisMederi Group** is a highly innovative reality in the Sienese area, Tuscany, Italy, especially well-known and appreciated on the international market of Research Services for the Pharmaceutical Industry.

VisMederi Holding Srl unipersonale (www.vismederiholding.com) is the company that holds a qualified share of the companies that are part of the VisMederi Group.

Over the years, the Group has experienced a stable growth path that led it to **employ more than 150 people** in the area in 2022, including researchers and highly qualified laboratory personnel.

Its longest-running and best-known company is **VisMederi Srl** (www.vismederi.com) which, set out to consolidate its reputation as a reference centre for clinical research in the field of vaccines, boasts a rapid increase in size and a turnover in massive expansion, underlining the strategic importance of the reference sector, in strong contrast to the negative trend that the recent pandemic crisis has generated across the whole of the traditional manufacturing sectors. Always active in several areas of Life Sciences, VisMederi's core business lies on the evaluation of vaccine efficacy and offers its customers a wide range of services including the development of serological and virological tests, diagnostic tests, cell cultures and project management related to clinical research protocols.

The VisMederi Group encompasses its activities to several related sectors, such as food and environmental analyses, recently under development thanks to the commercial success achieved by innovative types of tests offered by **VisMederi Life Sciences Srl** (www.vismederilifesciences.com), devoted to the evaluation of effectiveness of antiviral treatments in fabrics and different types of food packaging. **VisMederi Pharma Srl** (www.vismederipharma.com) operates in the wholesale sector of medical devices, such as Covid-19 swabs, and food

supplements. Other activities carried out by the company range from Quality Control on the textile market with **VisMederi Textyle Srl** (www.vismederitextyle.com) to Higher Education in Life Sciences offered by its unipersonal limited liability company, **ETHS - Education and Training for Health Sciences Srl unipersonale**. Research in VisMederi plays a prominent role and remains the core business of **VisMederi Research Srl** (www.vismederiresearch.com), in which many of the innovative methods offered by the VisMederi Group are designed and tested. Alongside the latter, the **VisMederi Foundation** operates with its commitment to spread the value created by research in the area of Siena, the city where the origins of the Group are rooted and the place where its activities are focused.

OTHER INFO:

Contacts:

Laboratories: Strada del Petriccio e Belriguardo, 35
53100 Siena, Italy
Phone +39 0577 381253/55

Headquarter: Via Franco Ferrini 53
Loc. Tognazza - San Martino
53035 Monteriggioni (SI), Italy
Phone +39 0577 1520990
info@vismederi.com
www.vismederi.com



VISMEDERI GROUP VISMEDERI SRL

VisMederi Srl, founded in 2009 thanks to the considerable scientific expertise and experience of its management and staff, is a globally skilled, well-resourced Research and Service Company that supports businesses and big pharma industries in improving public health through the development and optimization of safer and more effective drugs and vaccines.

VisMederi conducts and perfects serological tests to evaluate the immunogenicity of vaccines, creates and validates bioanalytical methods and experimental protocols for the release of therapeutic molecules and vaccines in development phases and performs quality control during the intermediate stages of vaccine production.

The tests carried out by VisMederi always require a validation process consistent with international guidelines such as “Validation of Analytical Procedures: Text and Methodology (ICH)” and as required by leading international regulatory bodies such as EMA (European Medicines Agency), FDA (Food and Drug Administration) and PMDA (Pharmaceuticals and Medical Devices Agency).

OTHER INFO:

Date of foundation: 2009
Administrator: Duccio Meiattini
Company size: 80

Contacts:

VisMederi Srl

Strada del Petriccio e Belriguardo, 35
53100 Siena, Italia
Phone +39 0577 381254/55
info@vismederi.com
www.vismederi.com



VISMEDERI GROUP VISMEDERI RESEARCH SRL

Founded in 2014, and based in Siena, VisMederi Research Srl is VisMederi's "sister company" that is deputy to performing basic and applied research activities, supporting the development and optimization of new protocols. Among various activities, VisMederi Research handles culturing and storage of various human and animal cell lines; growth and propagation of influenza viruses in the cell and embryonated chicken eggs platforms; production of pseudotyped viral particles along with many assays optimised to be applied in research studies for Influenza and for newly emerging infectious diseases.

OTHER INFO:

Date of foundation: 2014

Administrator: Duccio Meiattini

Company size: 8

Contacts:

VisMederi Research Srl

Strada del Petriccio e Belriguardo, 35

53100 Siena, Italia

Phone +39 0577 381259

info@vismederi.com

www.vismederi.com



VISMEDERI GROUP VISMEDERI LIFE SCIENCES SRL

VisMederi Life Sciences offers professional chemical-physical and microbiological analysis services within the scope of food and environmental self-control procedures through investigation on food, work surfaces, water and soil. It also carries out validation and drafting of HACCP self-control plans, training courses on current regulations, internal and supplier inspections and qualified consultancy.

Today the VisMederi Life Sciences laboratory is able to carry out tests for the detection of Coronavirus on different types of surfaces and in any structure, detecting the presence of SARS COV- 2 virus RNA using a Real Time PCR technique.

OTHER INFO:

Date of foundation: 2012
Administrator: Duccio Meiattini
Company size: 7

Contacts:

VisMederi Life Sciences
Strada del Petriccio e Belriguardo, 35
53100 Siena, Italia
Phone +39 0577 381257
info@vismederilifesciences.com
www.vismederi.com





RESEARCH GROUPS

CERM FOUNDATION (COMPETITIVENESS, RULES AND MARKETS)

CeRM is an independent research center created with the institutional aim at contributing to the enhancement of the technical quality and transparency of economic policy and market regulation decisions.

ACTIVITY

CeRM's studies mainly regard institutional reforms, the modernization of the welfare system, scientific and technological innovation, healthcare and research systems,

the transformation of the labor market, and the design of regulatory structures and governance models with application to the different contexts in which the business activity is carried out.

OTHER INFO:
www.cermlab.it



CENTER FOR IMMUNO-ONCOLOGY, UNIVERSITY HOSPITAL OF SIENA

The Center for Immuno-Oncology (CIO) is a multidisciplinary entity of the Azienda Ospedaliera Universitaria Senese (AOUS), established in 2017 by the AOUS to allow clinical and pre-clinical researchers to operate in a highly integrated, comprehensive scientific environment dedicated to cancer immunotherapy. The CIO has 4 fundamental structural units: the clinical facilities of Medical Oncology and Immunotherapy, the Clinical Research unit for clinical trials, the Translational Laboratories dedicated to the activities supporting the clinical trial programs, and the Pre-Clinical Laboratories dedicated to basic research (located at MRC Building c/o TLS incubator).

ACTIVITY

Main activities of the Center are:

- Clinical and experimental immunotherapy of solid malignancies;
- Immunomonitoring of patients treated within clinical trials of cancer immunotherapy;
- Epigenetic regulation of immune-related mechanisms involved in tumor progression and resistance to immunotherapy;
- Immunomodulatory activity of new epigenetic drugs to identify new partners for immunotherapy protocols;
- Therapeutic efficacy of new bio-immunotherapeutic agents and their combinations to evaluate their anti-tumor activities.

POTENTIAL (IN 1-3 YEARS)

- Identification of epigenetically-modeled, immune-related features underlying tumor progression and metastatization;
- Characterization of epigenetically-sustained mechanism(s) accounting for primary and secondary resistance to immunotherapies;



- Implementation of highly innovative, hypothesis-driven, epigenetically-based, immunotherapy clinical trials in cancer patients;
- Identification of predictive biomarkers in the context of innovative immunotherapies;
- Development of new personalized combined epigenetic-immunotherapeutic approaches.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Contacts:

CIO Director: Prof. Michele Maio, Azienda Ospedaliera Universitaria Senese e Università degli studi di Siena, viale Bracci 16, 53100 Siena - Italy
mmaiocro@gmail.com

CIO Pre-Clinical Laboratories: Dr. Alessia Covre, MRC Building c/o TLS Incubator - Strada del Petriccio e Belriguardo 35, 53100, Siena - Italy
alessiacovre@gmail.com

CTG LAB: COMPUTATIONAL AND TRANSLATIONAL GENOMICS LAB

The **CTG Laboratory's** research focuses on the development of computational and analytical methods to transform experimental molecular and clinical data into relevant information to improve clinical decision-making in the field of Precision Medicine. The approach is multidisciplinary combining mathematics, statistics, and computer science to dissect the complexity of biological and medical data.

ACTIVITY

Researchers have wide expertise in analyzing high-throughput data (whole and exome seq, RNAseq, small RNAseq), and in developing ML/DP methods for copy number variation (CNV) identification from HTS data and their characterization. Further research interests include interpreting the role of non-coding variants in genetic disease; modeling patient-specific tumor heterogeneity using multi-omics data integration; identifying actionable cancer neoepitopes; characterization of the functional role of microRNAs and their regulatory networks in tumor drug resistance mechanisms and in cardiac pathogenesis; identification of non-invasive biomarkers for therapeutic oncological monitoring and drug resistance; exploring Quantum Computing for biomedical applications.

POTENTIAL (IN 1-3 YEARS)

- Characterization of SVs and epigenomics alterations leveraging optical genome mapping and third-generation sequencing.
- Development of improved computational methods for clinical diagnostics.
- Exploration of Quantum-enhanced ML approaches in biology and medicine.

PUBLICATIONS AND RESEARCH SUPPORT

For the complete list of publications please refer to



KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Employees: 9

Contacts

Romina D'Aurizio, PhD
Researcher, IIT-CNR
romina.daurizio@iit.cnr.it
<https://ctglab.github.io>
www.iit.cnr.it



DEPARTMENT OF MEDICAL SCIENCES, SURGICAL AND NEUROSCIENCES (DSMNC), UNIVERSITY OF SIENA

The Department of Medical Sciences, Surgical and Neurosciences (DSMNC) was born from the desire to aggregate the initial proposal of three Departments of the University of Siena thus favouring a broad aggregation in a context of organic continuity among the Scientific-Disciplinary Sectors. DSMNC promotes teaching and research activities in the Area of Biomedical and Medical Sciences and is an active part of the Tuscany Regional Centre for Precision Medicine (CReMeP).

ACTIVITY

Research activities cross multiple contexts and are aimed at the identification of novel molecular mechanisms of various diseases, including metabolic disorders, endocrine, neurodegenerative, cancer and immune-mediated diseases, as well as at the identification of innovative biomarkers in order to foster a broad development of precision and personalized medicine. The development and implementation of high-throughput platforms for nucleic acid sequencing and analysis and the existence of an advanced high-resolution microscopy image analysis platforms and expertise represent two of the multiple strengths upon which the translational research activities of the DSMCN are based.

TECHNOLOGY AND PATENTS

DSMNC research lab has a strong know-how on the analysis of multiples biomarkers molecules (e.g. small RNAs) from biological fluids in several metabolic/endocrine and

immune-related disease contexts. Researchers of DSMNC have recently developed a standardized platform for sequencing analysis of small RNAs from biological fluids. Moreover, high-throughput molecular solutions (exome, whole genome, microbiome sequencing) have been well established, alongside with a solid expertise in confocal microscopy, whole slide fluorescence microscopy and laser capture microdissection analysis.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- grant search

OTHER INFO:

Employees: 14

Contacts:

Headquarter: Dipartimento di Scienze Mediche Chirurgiche e Neuroscienze_ Università degli Studi di Siena
Viale M. Bracci, 16
53100 Siena, Italy
www.dsmcn.unisi.it/it



INSTITUTE OF CLINICAL PHYSIOLOGY OF THE NATIONAL RESEARCH COUNCIL (CNR)

The Siena Unit of the Institute of Clinical Physiology (IFC) of the National Research Council (CNR) carries out and promotes activities in the field of Biomedical and Health Sciences focusing on experimental oncology. Its mission is to sustain and promote the scientific and technological research through collaborations among national and international institutions and industrial partners.

ACTIVITY

The Siena Unit of the IFC-CNR is focused on different research projects:

- i) Study of molecular mechanisms controlling cell growth and transformation, responses to oxidative stress, and cellular senescence, mediated by mitogen activated protein kinases (MAPKs).
- ii) Study of the role of autophagy in cancer and rare genetic diseases.
- iii) Development of new theranostic approaches to cancer by targeted delivery of active molecules and contrast agents to tumor cells and tissues.
- iv) Loco-regional therapy of Glioblastoma.

The Unit works in strict collaboration with the Core Research Laboratory (CRL) of the Institute for the Study, Prevention and Network of Oncology (ISPRO). The Unit also carries out activity of tutoring and training for undergraduate, postgraduate and doctorate fellows, collaborating with National and Foreign Universities and participating in project of alternating traineeship (work-linked training).

PUBLICATIONS AND RESEARCH SUPPORT

Research conducted in the Unit is reported in high rated international scientific journals such as Autophagy, JBC, Aging Cell, Oncogene, Scientific Reports, Journal of Medicinal Chemistry, Cell Reports.

Support to research is based on competitive grants from Italian and international institutions (AIRC, Ministero della Salute, Regione Toscana, European Joint Programme on Rare Diseases) and from ad hoc funding from private companies. For a complete list of publications and grants please refer to ORCID ID: [http:// orcid.org/0000-0001-8434-5177](http://orcid.org/0000-0001-8434-5177).

POTENTIAL (IN 1-3 YEARS)

- Identification of novel molecular targets for improved pharmacological approaches to cancer.
- Development of improved delivery systems to specifically target tumor cells and tissues.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- grant search

OTHER INFO:

Date of foundation: 2007

Company Size: 9 employees

Contacts:

Mario Chiariello, MD, PhD

Director of Research IFC-CNR, Siena

mario.chiariello@cnr.it

www.ifc.cnr.it/index.php/en/le-sedi-secondarie/siena#siena





ISPRO (INSTITUTE FOR THE STUDY, PREVENTION AND NETWORK OF ONCOLOGY)

The Institute for the Study, Prevention and Network of Oncology (ISPRO) is a body of the Regional Health Service whose purpose is to promote, measure and study primary, secondary and tertiary actions for cancer prevention and to organize and coordinate, in synergy with other bodies of the regional health service, prevention, diagnosis, treatment and research in the oncology field.

ACTIVITY

Inside ISPRO, the Core Research Laboratory operates, through different Units located in Florence, Siena and Pisa, with the task of carrying out basic research in cancer and, in particular, in the study of the molecular mechanisms that are at its origins, creating synergies within the regional oncology network. In particular, the “Signal Transduction” Unit is located in Siena and its interests are focused on different research projects:

- i) Study of molecular mechanisms controlling cell growth and transformation, responses to oxidative stress, and cellular senescence, mediated by mitogen activated protein kinases (MAPKs).
- ii) Study of the role of autophagy in cancer and rare genetic diseases.
- iii) Development of new theranostic approaches to cancer by targeted delivery of active molecules and contrast agents to tumor cells and tissues.
- iv) Loco-regional therapy of Glioblastoma.

The “Signal Transduction” Unit works in strict collaboration with the Institute of Clinical Physiology (IFC) of the National Research Council (CNR). The Unit also carries out activity of tutoring and training for undergraduate, postgraduate and doctorate fellows, collaborating with National and

Foreign Universities and participating in project of alternating traineeship (work-linked training).

PUBLICATIONS AND RESEARCH SUPPORT

Research conducted in the Unit is frequently reported in high rated international scientific journals such as Autophagy, JBC, Aging Cell, Oncogene, Scientific Reports, Journal of Medicinal Chemistry, Cell Reports. Support to research is based on competitive grants from Italian and international institutions (AIRC, Ministero della Salute, Regione Toscana, European Joint Programme on Rare Diseases) and from ad hoc funding from private companies. For a complete list of publications and grants please refer to ORCID ID: [http:// orcid.org/0000-0001-8434-5177](http://orcid.org/0000-0001-8434-5177).

POTENTIAL (IN 1-3 YEARS)

- Identification of novel molecular targets for improved pharmacological approaches to cancer.
- Development of improved delivery systems to specifically target tumor cells and tissues.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- grant search

OTHER INFO:

Date of foundation: 2007
Company Size: 9 employees

Contacts:

Mario Chiariello, MD, PhD
Principal Investigator, CRL-ISPRO
m.chiariello@ispro.toscana.it
www.ispro.toscana.it/crl/trasduzione

LIAISON OFFICE (LO), UNIVERSITY OF SIENA

The Liaison Office (LO) of the University of Siena was founded in 1998 to promote the research activities and the entrepreneurship of students, researchers and professors carried out in university departments through virtuous technology transfer practices. The LO offers a series of services to facilitate new partnerships between academic community and companies, Intellectual Property, licensing activities and the creation of spin-off companies. The LO opened an office at Toscana Life Sciences incubator in March 2008, along with the signature of a TLS - University of Siena collaboration agreement.

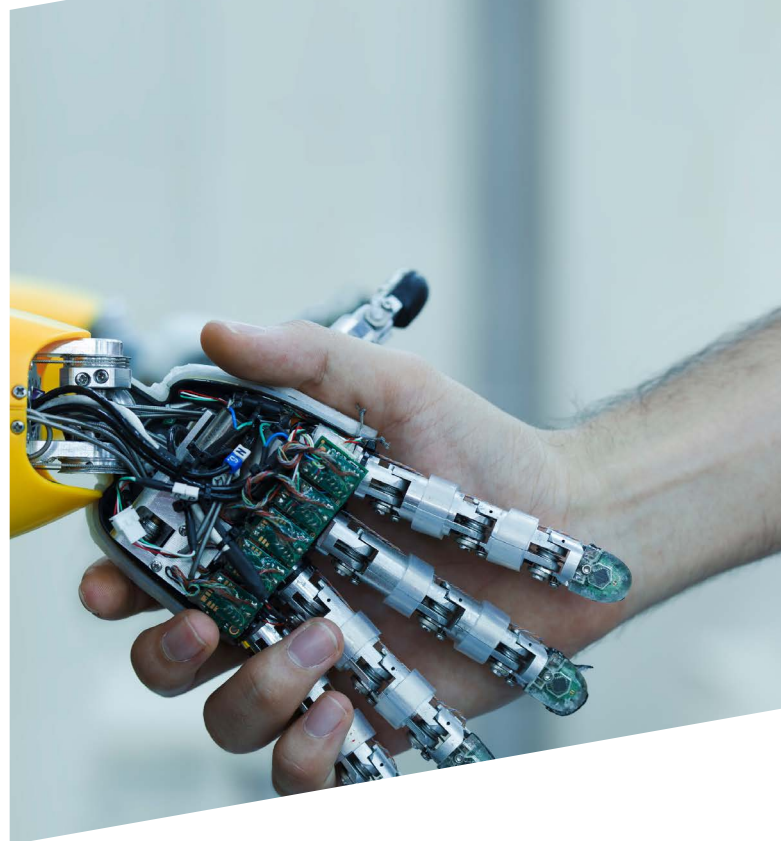
ACTIVITY

The Liaison Office promotes and coordinates initiatives between the University and all the players that can contribute to empower the potentials of the University. Among others, it is possible to define four main fields in which the LO operates:

- a. Academic spin-offs and start-ups;
- b. Intellectual property services;
- c. Joint Research Laboratories (JRL);
- d. Education, dissemination and technology transfer.

TECHNOLOGY AND PATENTS

The Liaison Office promotes several projects developed at the University of Siena and its spin-offs in the area of Life Sciences (vaccines, applied immunology, pharmacology, oncology, development of diagnostic tests, genomics), of Medical Devices (rehabilitation and assistive technologies, haptic systems), Information and Communication Technologies (internet of things, software applications), Agri-food (weighted management of the territory, traceability, nutraceuticals, cosmetics, sustainable development), Cultural Heritage (landscape assessment, museum itineraries), and Territory Assessment (geological surveys, environmental analyses). Further details about the University of Siena patent portfolio are available at: <http://gateway.unisi.it/brevetti>



PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- intellectual property services
- investment opportunities
- grant search

OTHER INFO:

Date of foundation: 1998

Contacts:

Via Valdimontone 1, 53100, Siena - Italy

Tel. +39 0577 235373

liaison@unisi.it

www.unisi.it/ricerca/imprese-e-trasferimento-tecnologico

MOLSYS

MolSys is the technology platform of the Department of Biotechnology, Chemistry, and Pharmacy of the University of Siena. MolSys provides expertise for your proteomics, metabolomics, and computational modeling research projects, three complementary fields in a single hub.

Activity and Services

MolSys is a technology platform that offers molecular characterization at many levels, from small molecules to proteins, from complex biological matrices such as biofluids to cellular and vegetal extracts. The goal is accomplished by combining many complementary technology platforms in a multi-omics approach: the Spectrometry Centre for structural determination, the High Throughput Screening lab for biological activity investigation, and the High Performance Computing lab for Bioinformatics and computational studies.

TECHNOLOGY AND PATENTS

MolSys is a platform offering many complementary technologies: MALDI TOF/TOF mass spectrometer (proteomics, tissue imaging); timsTOF UHPLC/Mass spectrometer with ion mobility (structural characterization, metabolomics); Nuclear magnetic resonance spectrometer 600Mhz (3D structures of small molecules and proteins, metabolomics); Cell culture facility and high throughput screening of biological activity with Integra Assist plus - liquid handling robots (also in a sterile environment); Cluster computer equipped with state-of-the-art hardware and software, suitable for high demanding applications such as computational chemistry, bioinformatics, Next Genome Sequencing and AI application with native Tensor support.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2021

Employees: 6

Contacts:

Headquarter: Dept. of Biotechnology, Chemistry, and Pharmacy, via A. Moro 2, 53100 Siena

Laboratory: TLS - MRC Building, Strada Petriccio e Belriguardo 35, 53100 Siena

Dr. Andrea Bernini, +39 0577235275, andrea.bernini@unisi.it

molsys.dbcf.unisi.it



ITALIAN NETWORK FOR TUMOR BIO-IMMUNOTHERAPY (NIBIT) FOUNDATION

The NIBIT Foundation was established on the initiative of “NIBIT” in 2012, aiming to carry out scientific and research activities in the biomedical oncological sector, with particular but not exclusive regard to applied research in the pre-clinical and clinical fields in cancer bio-immunotherapy. The president of the NIBIT Foundation is Prof. Michele Maio, Director of the Center for Immuno-Oncology at the Azienda Ospedaliera Universitaria Senese (AOUS). The Foundation collaborates with the AOUS and has extensive national and international collaborations with major scientific Institutions and with public and private granting Agencies.

ACTIVITY

Main activities are:

- Design, develop and implement phase I-IV clinical trials
- Coordinate and/or cooperate at multicenter clinical studies
- Promote scientific and educational activities in cancer bio-immunotherapy
- Support basic and/or translational research projects

The NIBIT Foundation also designs and develops national and international scientific educational events in Immuno-Oncology (e.g., Masters, Master-classes, Think Tank, etc.).

POTENTIAL (IN 1-3 YEARS)

Development and promotion of clinical trials of cancer immunotherapy in solid tumors;
Development of technological platforms for translational studies in cancer immunology;
Identification of predictive biomarkers in the context of innovative immunotherapies and biological therapies and

development of new personalised immunotherapeutic approaches;
Scientific advice and support to develop educational activities and international scientific events focusing on clinical and translational activities developed by the Foundation.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- grant search

OTHER INFO:

Contacts:

NIBIT Foundation Laboratories: c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy

Legal address: c/o Studio Buzzo Bernardi, via Goffredo Mameli 3/1 - 16122 Genova - Italy

segreteria@fondazioneibit.org

www.fondazioneibit.org



QUANTITATIVE NEUROIMAGING LAB (QNL)

The Quantitative Neuroimaging Laboratory (QNL) of the University of Siena, founded and directed by Prof. De Stefano during the late 1990', conducts clinical research activity in the field of neurodegenerative pathologies, with specific research projects aimed at the development and application of new neuroimaging techniques. Over the years, the Laboratory has leveraged on the collaboration of other centres that deal with new aspects of the biomedical research such as the Functional Magnetic Resonance Imaging of the Brain (FMRIB) of the Oxford University and the Brain Imaging Centre of the Montreal Neurological Institute - McGill University.

ACTIVITY

The research activity aims at improving the understanding of chronic neurological diseases through an improved ability in important biomarkers quantification of global and focal brain damage. In particular, the laboratory activity has been focused on the development of new tools for the quantification of structural damage and the application of the more advanced techniques for the assessment of functional and metabolic damage.

Examples of the fruitful collaborations engaged by QNL with Oxford University is the creation and validation of SIENA (Structural Imaging Evaluation of Normalized Atrophy), a worldwide spread software for the quantification of percentage brain volume changes over time.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- grant search

OTHER INFO:

Company Size: 15 employees

Contacts:

Viale Bracci 2, 53100, Siena - Italy
efimenko@unisi.it



UMBERTO DI MARIO FOUNDATION (FDM) ONLUS

The Umberto Di Mario Research Foundation, based in Rome and Siena, works in the translational medicine arena, and in particular in the treatment of diabetes, including rare forms of childhood diabetes. The Foundation, assisted by an International Scientific Committee, promotes and supports excellent research projects and other initiatives (fellowships, workshops, meetings etc.).

ACTIVITY

The specific interests of the Foundation include diabetes mellitus, chronic inflammatory diseases and immune-mediated diseases, in addition to tumours of the nervous system. The Siena-based group is composed of 5 researchers under the scientific coordination of Prof. Francesco Dotta, Full Professor of Endocrinology at the University of Siena.

The Foundation participates in national and international research networks supported by institutions including the European Commission, the Juvenile Diabetes Research Foundation, the Italian Ministry for Research and the Italian Ministry of Health.

TECHNOLOGY AND PATENTS

Umberto di Mario Research Foundation researchers developed standardized protocols for high-throughput identification of novel human blood circulating biomarkers molecules (small non-coding RNAs), multiplexed imaging fluorescence analysis and microdissection of human tissues, and molecular biology assays to evaluate the role of microRNAs in diabetes mellitus, both as disease biomarkers and as determinants of diabetes-associated pathogenic mechanisms.

Umberto di Mario Researchers in collaboration with University of Siena and University of Leuven patented a set of plasma-circulating microRNAs whose expression is



able to predict the success of an autoantigen specific-based therapeutic approach in autoimmune diabetes.

POTENTIAL (IN 1-3 YEARS)

Discovery of novel diabetes biomarkers; identification of innovative therapeutic targets in diabetes. fosters new collaborations in diabetes and translational/precision medicine.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- grant search

OTHER INFO:

Date of foundation: 2000

Contacts:

Largo Ettore Marchiafava 1, 00161, Roma - Italy
c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy
Tel. +39 0577 231283
info@fondazioneDIMARIO.org
www.fondazioneDIMARIO.org



AFFILIATED COMPANIES

BBA SRL - BESPOKE BIOTECH ADVISORY

We are a boutique consulting firm that provides an array of management consulting and technology implementation services in the Life Sciences, and we bring value to clients based on the first-hand experience and seniority of our consultants, covering the value chain from the proof-of-concept to the international development.

We believe in collaboration, cooperation, and partnerships as a key competitive success factor to face complexity, both for our clients and ourselves. We strive to redefine consulting to make it better for clients and for our consultants. By analyzing every project, we set up a team of experienced partners as well as the right value chain business partners to tackle it.

We provide expert advice on Market and Managerial Trends as well as successful applications; we provide Expertise by seniority as well as Insight, but we double down on Execution.

ACTIVITY

We bring value in:

- Strategy (Setting and Execution)
- Go to Market
- Marketing & Sales
- Business Development (Partnerships, Licensing, Lead Generation, Sales Channels)
- M&A, Fund Raising
- Technology Scouting
- Digital Transformation and Integration aligned to Company Strategy (Study, Plan, Do)
- Organization and Change; Temporary INSIDE engagements

We target the following Segments

- Biotechnological products and ancillary services
- Digital Health and Precision Medicine
- Diagnostics and Medical Devices
- Nutraceuticals and Cosmeceuticals
- Vaccines and infectious diseases

We help Entrepreneurs

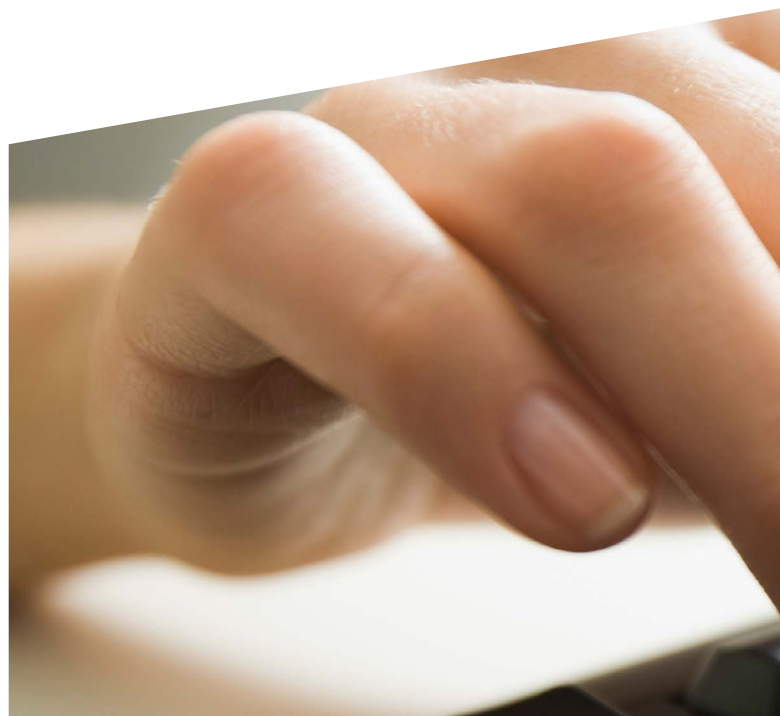
- SME's with expansion and enhancement goals, Start Ups -Scale Ups or projects at stage TRL 6/7 or microbusiness from stage CM 4/5

We help Investors

with or without specific knowledge of industry and segments

We also provide expert advice on Digital Transformation through a *network of specialized IT companies*.

We develop digital strategies that deliver, in line with our customer's core strategy, providing them with valuable services to their clients while having more efficient processes.



With our valuable support, our customers can target:

- Business Process Re-engineering
- System Integration
- Data-Driven Strategy
- Document Management
- Quality Management
- Hyperautomation
- Industry 4.0 and IoT
- Service Design

KEY PARTNERING OPPORTUNITIES

- technology scouting
- strategic partnerships
- m&a
- digital transformation projects

OTHER INFO:

Contacts:

Legal Address: Strada Petriccio e Belriguardo 35 - 53100 Siena

Admin Address: Via S. Tommaso 118, 56029 Santa Croce sull'Arno (PI) - Italy

info@bespokebiotech.com

www.bespokebiotech.com



BIOMVIS S.R.L.

BiOMViS Srl is a Biotech Company founded in 2017 to foster prophylactic and immunotherapeutic interventions in infectious diseases and cancer.

ACTIVITY

BiOMViS Srl is a biotech Company specialized in the use of **bacterial Outer Membrane Vesicles (OMVs)** as vaccine platform. OMVs are:

closed spheroid particles released by Gram-negative bacteria in the extracellular milieu;
non-infective organelles being deprived of self-replicating nucleic acids.

OMVs are particularly attractive as vaccine platform for three main features:

1. they carry potent stimulators (adjuvants) of the immune system
2. they can be efficiently decorated with foreign antigens
3. they can be easily purified from bacterial culture supernatant

The unique properties of OMVs have already been exploited to develop vaccines for human use.

TECHNOLOGY AND PATENTS

Uniqueness of BiOMViS' proprietary vaccine platform. The BiOMViS vaccine platform is based on **three unique “technological pillars”**:

1. Use of non-pathogenic *E. coli* strains genetically reprogrammed to become living factories of safe, highly immunogenic OMVs
2. Use of “precision engineering expression vectors” which allow the accumulation of large quantities of vaccine antigens in the OMV compartment.
3. Unbeatable simplicity of the production process of OMV-based vaccines.

The BiOMViS' vaccine factories

The wild type non-pathogenic *E. coli* strains are among the most utilized microorganisms for biotechnological applications, including the production of biological products for human health. However, wild type strains are not particularly indicated as OMV-based vaccine factories in that they release low quantities of OMVs (usually less than 1 mg/Lt), and the released OMVs carry reactogenic lipopolysaccharide (LPS) and numerous unnecessary endogenous proteins. BiOMViS platform technology has overcome these limitations. BiOMViS is proprietary of a battery of genetically optimized *E. coli* strains that have become highly efficient OMV vaccine factories. The main features of BiOMViS' OMV-producing strains are:

- 1) **low reactogenicity,**
- 2) **substantial reduction of endogenous proteins (proteome minimized OMVs),**
- 3) **high OMV production yield.**

Precision engineering of OMVs

To reach the OMV compartment a protein has to travel from the cytoplasm all the way to the outer membrane. In this journey the protein has to cross the inner membrane and the peptidoglycan layer, get anchored to the outer membrane and eventually protrude out on the surface. For delivering vaccine antigens to the OMVs, BiOMViS is proprietary of a unique technology which exploits the transport machinery of lipoproteins. The gene coding for the antigen of interest is inserted into one of the BiOMViS' “precision engineering plasmid vectors”, which promote the expression of the vaccine antigen in a lipidated form. In so doing, the lipidated **antigen accumulates at high yield on the OMVs membrane**. The amount of vaccine antigen can easily reach a concentration of up to 30% of total OMV proteins. **High levels of antigen expression in OMVs guarantee potent antigen-specific immune responses with minute vaccine doses.** Finally, antigen lipidation further **increases OMV adjuvanticity**.

Simplicity of production process of OMV-based vaccines

One of the most striking advantages of the OMV-based vaccines is the simplicity of their production process. Once the OMV-producing strain has been engineered (usually the construction of the vaccine factory takes 2-3 weeks) the vaccine production involves 1) the **fermentation** of the strain, 2) the **separation of the culture** supernatant from the biomass, and 3) the **ultrafiltration** of the culture supernatant to collect the OMVs. Concentrated OMVs are finally formulated to make the **vaccine lots**. This **simplicity** makes the **production process** of the OMV-based vaccines **unbeatable** in terms **simplicity and costs**.

POTENTIAL (IN 1-3 YEARS)

BiOMViS's pipeline consists of vaccines against infectious **diseases** and **immunotherapeutic approaches** against **cancer**.

BiOMViS is ready for Phase I/II clinical trials with:

1. Two viral vaccine: HPV and SARS-CoV2 OMV based vaccine
2. Two different OMV based bacterial vaccines against *Staphylococcus aureus* and Group A *Streptococcus*
3. A personalized cancer vaccine against solid tumors
4. A generalized cancer vaccine against different types of solid tumors

Several Research Contracts have been already finalized and others are foreseen for the next two years.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity

OTHER INFO:

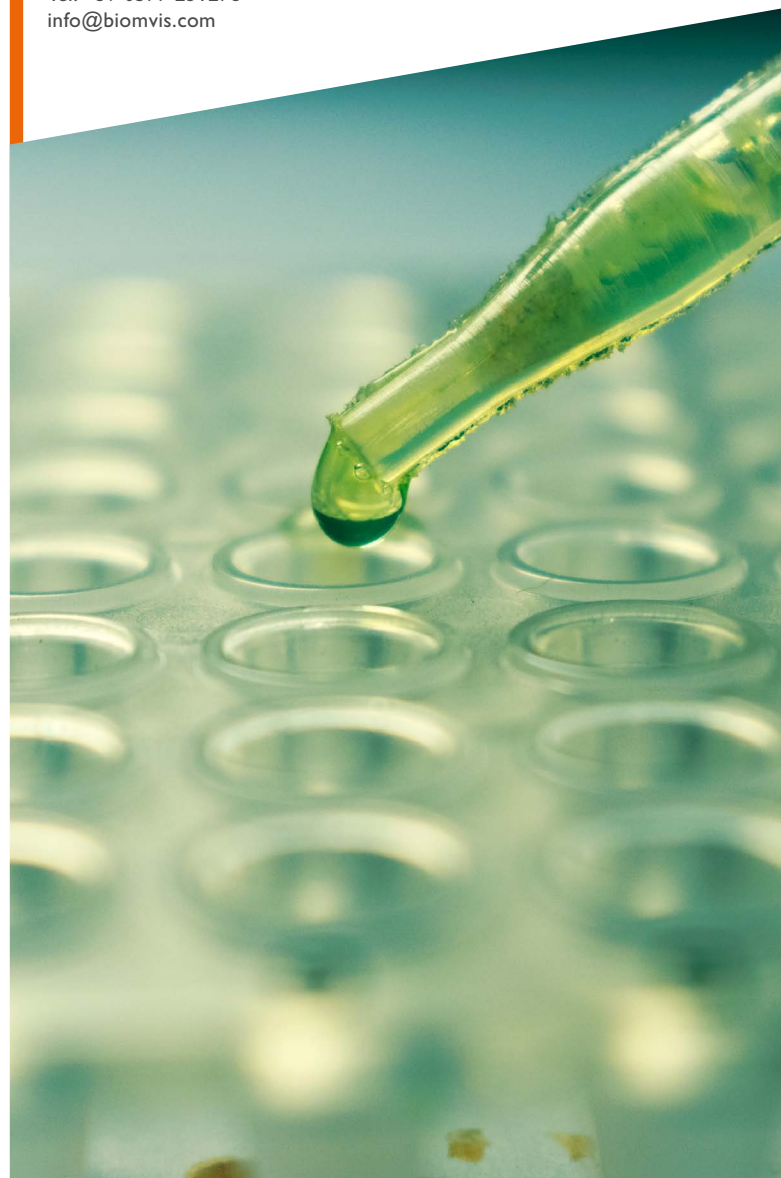
Date of foundation: 2017

Contacts:

Via Fiorentina, 1 - 53100, Siena Italy

Tel: +39 0577 231278

info@biomvis.com



BIORIDIS S.R.L.

BIORIDIS is a biotech, founded in Bologna in 2016. BIORIDIS' objectives is development, production and marketing of innovative kits for nucleic acid (DNA, RNA) detection for R&D and diagnostics application. BIORIDIS has managed to break the current technological barrier and develop, in the last 4 years of high-risk research, a revolutionary assay for nucleic acids analysis: the LIVELMIA method.

ACTIVITY

From LIVELMIA method we have developed the Power Marker kits, quick and easy assay for nucleic acids detection. Power Marker kits are designed to work directly on the sample, no extraction/purification steps are required. EV Power Marker is a kit for in vitro detection and quantification of RNA and DNA. Mir Power Marker is a kit optimized for in vitro detection and quantification of miRNA. Bioridis developed a software for rapid design of kits for target NA with advantage of LIVELMIA. We offer a personalized service on the NA target requested by the customer.

TECHNOLOGY AND PATENTS

The novelty of the LIVELMIA method is a new target recognition system based on a specific probes design, which exhibits ideal characteristics to hybridize target NA more rapidly, with higher affinity and specificity, improving the recognition of NAs. LIVELMIA method has been successfully tested on various types of samples (cell lysate, serum, plasma and saliva). Total time for analysis 1h and hand-on <10min.

The LIVELMIA, innovative technology for nucleic acid analysis is owned by BIORIDIS, it is Italy patent granted, PCT positive report, EPO, USA, China and South Korea pending.

KEY PARTNERING OPPORTUNITIES

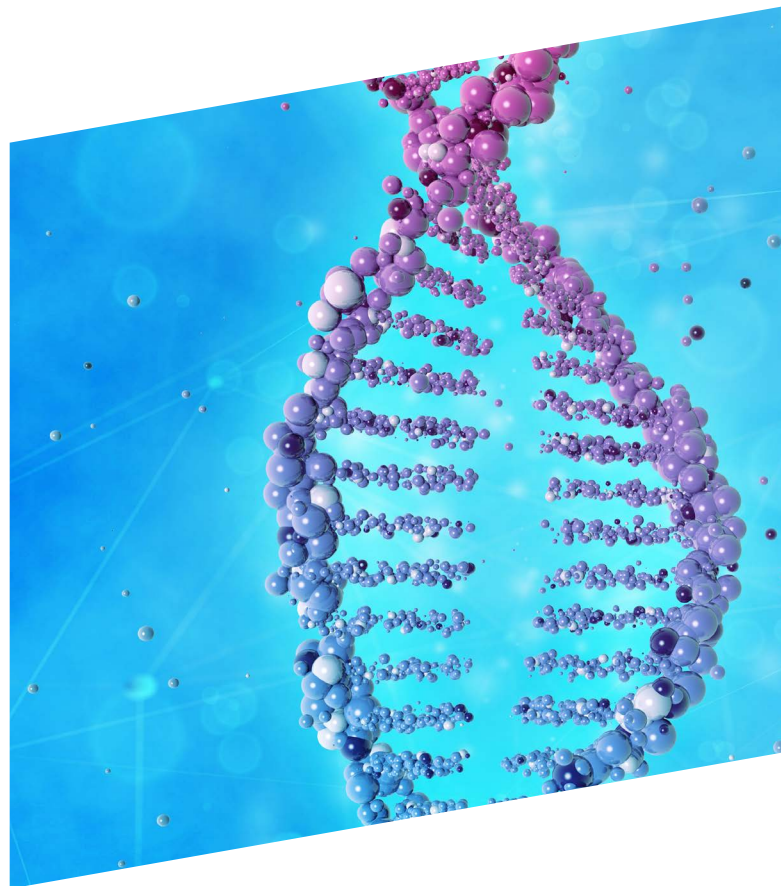
- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2016
Employees: 3

Contacts:

Headquarter: Via Alfonso Rubbiani 5, 40124 Bologna - Italy
andreatortori@bioridis.com
www.bioridis.com



EGOHEALTH

egoHEALTH is a start-up focused on the development, production, engineering and scientific marketing of innovative products and services with a high level of technological content, particularly in the field of UV and near-UV light disinfection. It operates in the bioengineering and biomedical informatics sectors, primarily with proprietary and patented technology.

egoHEALTH also performs activities for the promotion and conduction of research and development programs in the field of education and Public Health.

ACTIVITY

egoHEALTH figures have technical and scientific expertise that allow to assist Companies from their idea, up to the pre-industrial production of devices in the field of the disinfection. The multi-dimensional approach characterizes the operandi strategy because of competencies in engineering and re-engineering, fluid-dynamics studies, mechatronics, prototyping, photometric measurements (also with innovative sources of light) and microbiological tests. All the expertise is matched to assist and produce scientific documents experimenting in lab and real environments.

The company has developed several products in the field of disinfection. In particular, the Stet Clean family, multi-awarded and internationally recognized, is an innovative UV-C LED device that prevents cross contamination between patients disinfecting the stethoscope membrane.

TECHNOLOGY AND PATENTS

Device for the hygienisation of medical instruments (IT0001416112, US9114184; India pending); Device for the hygienisation of medical instruments, Device for the sterilisation of stethoscopes (IT0001424711, EP3164161, CA2954129, US 10,226,542, JP6553100, AU2015283749, Corea 10-2017-7000777); Device for the hygienisation



of contact lenses (IT102015000049940); Dispositivo di disinfezione (IT102020000013072); Lampada igienizzante (IT102021000001538 pending).

POTENTIAL (IN 1-3 YEARS)

Milestones: finding a partner for developing projects in the field of personal Hygiene; Evolution of STET CLEAN family; projects focused on air, surfaces and liquids disinfection.

KEY PARTNERING OPPORTUNITIES

- strategic partnership
- grant search

OTHER INFO:

Date of foundation: 2013
Company Size: 4 employees

Contacts:

c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy
Mob +39 339 6699422 Tel +39 0577 231211 - Fax +39 0577 43444
info@egohealth.it
www.egohealth.it
www.stetclean.com

EUROPEAN NETWORK OF IMMUNOLOGY INSTITUTES (ENII)

The European Network of Immunology Institutes (ENII) was founded in 1985 by 15 European Institutes devoted to research in molecular and cellular immunology.

The mission was to promote the quality of education and research in the field of immunology through scientific exchanges between laboratories and Research Centres belonging to European countries.

Since march 2018, ENII has the administrative headquarters at the TLS bioincubator.

The commitment was to create a European Network of Excellence and organize annual activities on the small island of Les Embiez, in the south of France, where initially was based. In 2006 the ENII activities were relocated to another island, Sardinia, in Italy. The Faculty Members of ENII Summer School are prestigious scientists and immunologists, including 3 Nobel Prizes.

ACTIVITY

Presently, the ENII Institutes are 31 European Research Departments located in Belgium, Finland, France, Germany, Ireland, Israel, Italy, Norway, Portugal, Spain, Sweden, Switzerland, The Netherlands, United Kingdom.

ENII has organized 21 annual workshops (1986-2006) and 3 EMBO Conferences (2007-2009-2011) on Molecular and Cellular Mechanisms of Immune Regulation.

Since 2006, under the direction of Prof.ssa Paola Ricciardi-Castagnoli and of the general manager Erica Lomnes, ENII organizes every year the Summer School dedicated to 100 european students aiming at promoting the discussion on cutting-edge topics in the quickly developing field of immunology with specific interest on the mechanisms that regulate immunity.

For over 30 years, ENII aims to promote the quality of European education and research in immunology by fostering scientific information exchanges through scientific educational activities and by creating an european network (ENII Alumni) through international mobility of scientists and researchers.

OTHER INFO:

Date of foundation: 1985

Contacts:

c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy
Tel. +39 333 8715717
school@enii.org
www.enii.org



EXOSOMICS S.P.A.

Operating in Siena since 2012, Exosomics (EXS) has developed solutions and IP for EVs characterization and bio-processing, liquid biopsy and cancer Dx. In the decade of presence in Siena, Exosomics has been able to grow an international reputation in the EV field and to attract important multinational Pharma and Biotech companies, such as Lonza and Agilent, to invest in the company and to land on Siena's territory. In November 2022 Exosomics sold to Lonza (Capsugel Italy) the branch of business relative to services to industry and bio-processing, including research facilities and employees, consolidating Lonza's business in the EV field and its presence in Tuscany. Exosomics, where Lonza and Agilent remain as the main industrial shareholders, is now an holding company, owning Hansabiomed Life Science, based in Tallinn, and Rivela Diagnostics, newly established in UK. The former is the oldest and larger EV focused company in Europe, developing and commercializing technologies and applications in the life sciences arena, the latter is focused on developing the patrimony of Exosomics in the field of cancer diagnostics.

ACTIVITY

Exosomics will continue to expand its portfolio in the EV field through M&A or other spin-offs in several additional EV related fields such as cosmetics, nutraceuticals, agronomy, veterinary and, of course, human diagnostics.

KEY PARTNERING OPPORTUNITIES

Key opportunities with EXS' Portfolio companies include:

- scientific collaboration
- strategic partnership
- investment opportunity
- grant applications

OTHER INFO:

Date of incorporation: 2011

Holding Company controlling:

- HansaBiomed Life Sciences
- Rivela Diagnostics

Contacts:

Legal Address: Strada del Petriccio e Belriguardo 35, 53100 Siena, Italy
www.exosomics.eu

Key contact: Antonio Chiesi, MD

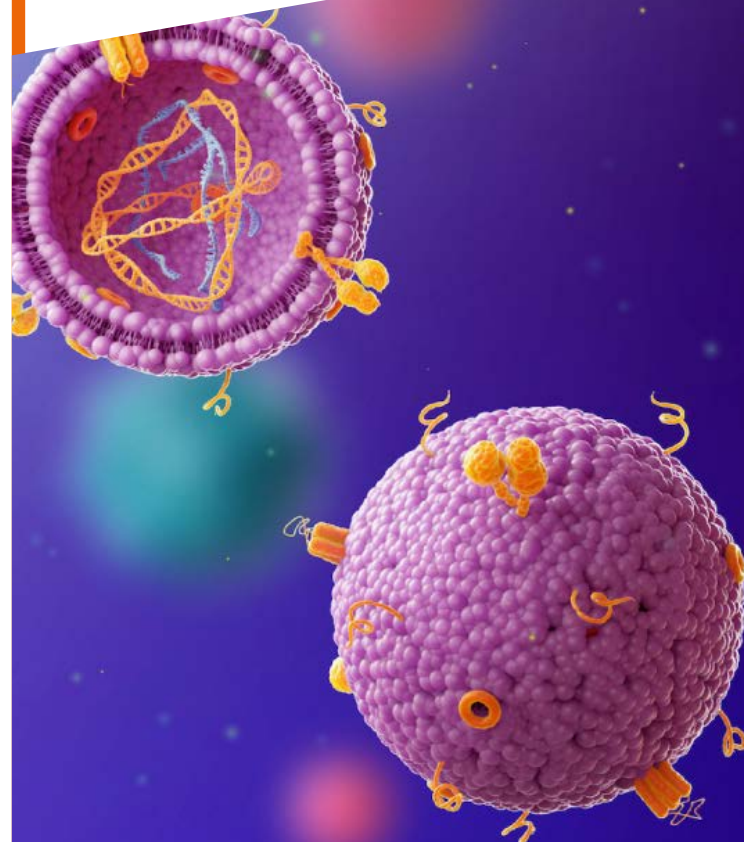
achiesi@exosomics.eu

Tel. +39 34929213694

Pete Corish, PhD

pcorish@exosomics.eu

Tel. +44 7900027496



FONDAZIONE ACHILLE SCLAVO

The **Fondazione Achille Sclavo ETS** is pursuing Prof. Achille Sclavo's commitment to the fight against infectious diseases following the *Planetary One Health* approach. Our Vision is to apply solid scientific research training and education in a multidisciplinary approach to health improvements fighting infectious diseases. The Foundation is currently contributing to advancing vaccines against neglected diseases and training in support of the underprivileged.

ACTIVITY

Our activities aim to improve global health, supporting and promoting activities and initiatives targeted to implement the concept of *Planetary One Health* as a connection between food production, nutrition, health and sustainability, integrating:

- research, development and support of new vaccines, monoclonal antibodies and diagnostics against infectious diseases,
- more sustainable food production systems and methods respectful of the environment,
- correct information to the public on vaccination benefits,
- activities targeted to promote and implement environmental as well as socioeconomic sustainability with the 2030 Agenda and future programs as guiding principles.

TECHNOLOGY AND PATENTS

The Foundation has pursued accelerated availability of vaccines against neglected diseases of poverty identifying the problematic areas and addressing them through national and European Grants.

The foundation through its very experienced Board of Directors, staff and external collaborators, advanced pre-clinical studies of needed vaccines against neglected diseases, developing mathematical modeling of the disease and vaccine introduction, participating in WHO's effort to better define

and address the problems created by the disease. Dissemination of these new findings and strategies and correct information on diseases and vaccination complete our portfolio of activities.

POTENTIAL (IN 1 YEAR)

The Foundation is pursuing new approaches to the production of vaccines or diagnostics needed for Low-Middle Income Countries and new initiatives to support correct information about vaccination benefits

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- grant search

OTHER INFO:

Date of foundation: 2011
Company size: 6

Contacts:

Gianluca Breggi, Managing Director
breggi@sclavo.org
www.fondazionesclavo.org/en/



GENOMEUP S.R.L.

GenomeUp is an Italian Innovative SME (small and medium-sized enterprise) that develops, produces and delivers bioinformatics and digital solutions high technological value added with the aim of supporting diagnostics and scientific research in the field of human genetics.

ACTIVITY

GenomeUp makes the potential of digital solutions accessible to Genetics Laboratories in order to simplify the patients and samples management process, reduce human errors and support the interpretation and translation in easy-to-understand of genetic data from Next Generation Sequencing. We integrate bioinformatics algorithms and AI for the development of precision medicine in the diagnosis and therapy of genetic diseases and support the clinical decision for an accurate treatment of patients. Genomics and omic sciences are responding to the most difficult problems of human health conditions and are giving new hopes to people around the world. GenomeUp offer an ecosystem of digital services to support scientific, diagnostic, clinical and pharmaceutical research, for doctors and patients towards a path of awareness, management, monitoring and healing.

TECHNOLOGY AND PATENTS

GenomeUp developed JuliaOmix™, a modular solution for all stakeholders involved in the diagnosis journey: physicians, genetics biologists and laboratory technicians. JuliaOmix™ works with three independent smart tools, the JOMED, JOTRK and JOLAB. It collects all patients' health data (symptoms, drugs treatment and phenotypes), offers an innovative system of samples tracking and integrates bioinformatics pipelines for omics data analysis (whole genome, exome and microbiome), providing a digital in-cloud interactive clinical interpretation and report of genomic variants. JuliaOmix™ streamlines the daily disease management workflow to offer a novel approach to patient diagnosis. The SaMD platform is licensed

on an annual renewable basis to hospitals and genetic laboratories companies, providers, research and government organizations. It is privacy compliant (GDPR), available in Italian and English, and can be easily integrated with other offerings and white-labeled.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2017

Company Size: 5-20 employees

Contacts:

Headquarter viale Pasteur 6, Roma (00144)

info@genomeup.com

www.juliaomix.com



HEALTH RSI

Health RSI is a start-up company whose aim is to design, develop, promote and sell innovative technologies and/or services with high technological value, more precisely: research and experimental development in the field of medical engineering and biotechnology.

ACTIVITY

The Main Focus of the company is to define the first scientific validation system to “objectively” measure chronic pain on a neurophysiological and customized basis. This is a globally recognized unmet medical need for the sake of appropriate therapy both in the pain therapy field and in the clinical field of painful diseases.

Our research and development is based on engineering to produce a device detecting pain on a neurophysiological basis. It is based on combined stimuli given by a transcutaneous stimulation-based technology.

TECHNOLOGY AND PATENTS

The device uses “graph radar”, a patented algorithm which integrates and involves four functional elements to detect the reaction of the somato-sensory system: electro-stimulation; mechanic/vibration; gas/air flow; thermal (hot/cold)

The perception of these stimuli will allow detecting a specific pain threshold for each patient and assessing its modification over time in relation to the possible therapy -therapeutic appropriateness applied.

Dolorimeter Plus is the innovative technological proposal by Health RSI to measure the pain threshold:

- objectively (operator-independent)
- comparatively (Big Data / advanced statistics)
- in a classifiable way (multifunctional)

POTENTIAL (IN 1 YEAR)

Over the next six months, Health RSI is ready for a clinical investigation study to detect the pain threshold

value in the Italian population based on the physiological neurostimulation underlying pain and then to measure / quantify pain for each person through a unique digital value being replicable and to be monitored over time. Once this objective will be reached, the final prototype engineering will rapidly start for it to be placed on the market.

KEY PARTNERING OPPORTUNITIES

- strategic cooperation
- investment opportunities
- allow research

OTHER INFO:

Date of foundation: 2020 Company
Company size: 3 employees

Contacts:

Corso Alcide De Gasperi, 292 Postal Code 70125 BA (Bari)
(registered office); Via del Madonnone, 27 Postal Code 50136 FI
(Florence) (operational headquarters); Italy Phone: + 39 055 0457511
direzione@healthrsi.it
hrsi.it





HOSPITEX INTERNATIONAL

Hospitex International is Europe's No. 1 manufacturer of Liquid Based Cytology (LBC) instruments and consumables for human pathology.

Thanks to in-house R&D, industrialisation, mechanical and chemical production, the company has developed numerous cutting-edge technologies and patents in the LBC sector. Alongside the industrial production linked to the core LBC business, the company has 3 other operational business units: **Hospitex Labs**, for the supply of turnkey laboratories, **Hospitex Digital**, dedicated to the digitisation of pathology laboratories, and **Hospitex Solutions**, for B2C diagnostics services.

Hospitex has also a Learning Center: a competence and training centre for the preservation and transmission of medical know-how in cytology.

ACTIVITY

Our structure enables us to provide integrated, efficient solutions to all those who need to set up state-of-the-art cytology laboratories. Our activities therefore include both the production of laboratory instruments for cytology and services related to the world of laboratories and cytological examinations:

- Instruments for Liquid Based Cytology
- Laboratory reagents and consumables
- Telepathology
- Worldwide Turnkey Labs
- ITC services for laboratories
- Urine24 (Urine Cytology Exam, sold in pharmacies and online)
- PapTest24 (Pap Test Exam, sold online)

TECHNOLOGY AND PATENTS

Certifications IVDR and ISO 13485 for Medical Devices

PATENTS			
NAME	EXPIRATION	REFERENCE	TIPE
Monolayer slide preparer on liquid phase	2027	I342343	IT
Cytoincluded preparation kit	2040	I020200000I4863	IT
A kit for the preparation of cell blocks	204I	EP2I17995I	EU
CYTOfast Plus preparer	2040	I020200000I3357	IT
Nanomubiop	2027	000I384757	IT

REGISTERED TECHNICAL DRAWINGS - UTILITY MODELS			
Cytochamber	2040	008I98964-000I	EU
Vial for cell collection	2040	I020200000I4863	IT
Falcon tube holder	2040	20202I00000022I	IT

POTENTIAL (IN 1 YEAR)

We want to make oncological diagnostics accessible to all the inhabitants of the world. To do this, we create simple, innovative and effective solutions.

KEY PARTNERING OPPORTUNITIES

Hospitex is looking for key partners who want to commit themselves to making cancer diagnostics easier, faster and more effective. We are looking for:

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2015

Company size: 23 employees

Contacts:

Francesco Trisolini, Founder & CEO

info@hospitex.com

hospitex.com



INNBIOTEC PHARMA S.R.L.

Innbiotec Pharma researches and produces innovative biomedical solutions for people's well-being. Spin-off of the Department of Biomedical Sciences of the University of Florence, the company exploits technologies developed in over 20 years of research. The two main biotechnologies used by the company are bioavailable glutathione and oleuropein, molecules with strong antioxidant and anti-inflammatory properties, which form the basis of the formulations used in the company's research and products.

ACTIVITY

After years of development with its own internal team and in collaboration with Italian and international universities, Innbiotec is now structured in two divisions: R&D and Commercial. R&D studies high-impact pharma applications of the company's molecules, and takes them through testing for approval and distribution. Fields under study include: neurodegeneration (Alzheimer), liver diseases (NASH) and advanced respiratory diseases (ARDS). The retail arm sells over-the-counter nutraceutical food supplements for health, metabolism and sports, as well as dermatological/skincare products.

TECHNOLOGY AND PATENTS

The company holds over 18 patents, including:

1. New s-acyl glutathione derivatives, synthesis and use in treatment of cellular oxidative stress related pathologies.
2. Pharmaceutical composition containing glutathione thioesters to increase longevity.
3. Method and kit for rapid determination of total antioxidant capacity in whole blood and other biological samples.
4. Use of Oleuropein and its derivatives for type 2 diabetes treatment and diseases associated with protein aggregation.
5. Pharmaceutical composition for the prevention and treatment of age-related memory and cognitive deficits.

KEY PARTNERING OPPORTUNITIES

- Scientific collaboration
- Strategic partnership
- Investment opportunity
- Grant search

OTHER INFO:

Date of foundation: 2020

Employees: 10 including founders

Contacts:

Headquarter: via Martiri di Civitella, 5 - 52100, Arezzo, Italy

Phone: +39 0575 348113

Info@innbiotecpharma.com

www.innbiotecpharma.com



INNOVATION ACTA

Innovation Acta is focused on support in planning and execution of EU funding research programs. We support private and public organizations as well as individual researchers and SMEs to participate in multi-national collaboration projects or other grant opportunities. The first step of our mission is to assist our Clients in the preparation of project applications: we start with the identification of an appropriate financing strategy through the establishment of a successful consortia, then we organize the writing of the proposal and finally we take care of the formal submission of the project. In the second step our aim is to contribute to the management, to assist the consortium for all administrative aspects, for the communication and the dissemination of the project.

ACTIVITY

Our Services are:

FUNDING STRATEGIES - searching for the best financing strategy suitable for your project. Helps you find the right partner for Consortium Construction also considering own database of High-Level contacts in scientific field.

PROJECT MANAGEMENT - support in the organization and writing of the proposal and care of the formal submission of the proposal. Once granted, our aim is to support the management, the administrative issues, the progress reports preparation and submission. Legal assistance (grant agreements and consortium agreements preparation, Amendment Ethical Issues).

COMMUNICATION & DISSEMINATION - support the Coordinator in the Communication and Dissemination activities of the projects. Thanks to a competent and qualified staff we support the Consortium during the life-cycle of the project to achieve the following objectives: to communicate and disseminate the project results to a large audience and potential users (clinical/scientific community, general public and patients); to facilitate and promote

interaction with stakeholders (like patients and their families, clinicians and regulatory agencies etc.). Innovation Acta also creates the visual identity of the projects including web design (graphics material and contents), implements project websites, as an information tool with a public facing section and a private section, and creates and manages the Social Accounts, using news and contents provided by all the consortium's partners.

MEETING & EVENTS ORGANIZATION -

organization of meetings, scientific events and congresses, from strategic planning and on through coordination, operations, on-site management, evaluation and subsequent follow-up.

KEY PARTNERING OPPORTUNITIES

- strategic partnership
- grant search

OTHER INFO:

Date of foundation: 14/01/2015

Company Size: 6 employees

Contacts:

Headquarter: Roma Via D.A. Azuni, 9 and Operative Office in Siena Via delle Province 1

Phone: +39 0577 1652729

Mobile: +39 366 3746125



ITALIAN SCIENTIFIC SOCIETY FOR MEDICAL HEMP (SICAM)

The Italian Scientific Society for Medical Hemp (SICaM) was born in 2017, to become a reference point in the ever-changing national landscape regarding therapeutic cannabis. SICaM is responsible for supporting the spread of cannabinoid-based therapies by promoting a network of health, chemical and agronomic professionals. The company also deals with scientific research regarding the preparation of cannabis-based products and extracts and the agronomic techniques to be applied to the cultivation itself.

ACTIVITY

SICaM provides training and consulting services for pharmacists, doctors and agronomists working in the field of cannabis for therapeutic use. SICaM is also involved in research and development for growers and producers of cannabis-based extracts and preparations, providing advice and analysis services.

POTENTIAL (IN 1-3 YEARS)

Today SICaM has more than 50 associated professionals, including pharmacies and doctors. In the next 3 years the company expects to reach an exponentially higher number and to provide more and more integrated services for training and consulting (webinars, etc.). Furthermore, SICaM aims to formulate standards for both the first and second processing of raw cannabis materials.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search



OTHER INFO:

Date of foundation: 2017

Company Size: 4 founding members and operational council; 50 pharmacist and medical partners

Contacts:

via Fabio Massimo 25, 58100, Grosseto (GR) - Italy
 c/o TLS Incubator - Via Fiorentina 1, 53100, Siena - Italy
 Tel. +39 0564 490841 / +39 347 3062741
sicam.segreteria@gmail.com
www.sicamweb.it

KW APPARECCHI SCIENTIFICI

KW Apparecchi Scientifici srl (Scientific Instruments) is operating since 1953 in Siena, where has started the production of -80°C ULT freezers in the early 1960s, needed for the Sabin polyhemolytic vaccine. Today KW is the first supplier of cold chain devices for Italian National Healthcare System and exports its devices in over 80 countries worldwide. KW collaborates with universities, high schools and research centers for product optimization and for the development of innovative projects.

ACTIVITY

The continuous R&D activities let it to operate in the engineering and manufacturing of a wide range of products with operating temperatures between -125°C and +300°C, equipped with smart connection for integrated solutions, according to IoT/Industry 4.0. The numerous Italian and international certifications, including medical devices, are the result of the commitment to satisfy even the most demanding customers.

The devices are designed to satisfy the most demanding requirements of Research Laboratories, Pharmaceutical Companies, Hospitals, Analysis Laboratories, Bio Banks and more.

The production is focused on a wide range temperature of plug-in devices, installations and special projects designed as unique solution for special applications. With concern to the medical sector, KW is one of the largest Italian manufacturers of medical devices (CE Class IIa and Class I) for blood banks and transfusion centers. All the products are GMP compliant.

TECHNOLOGY AND PATENTS

The most important product lines are:

ULT Freezer -86°C, cascade system with pure gases;

recognized among the highest quality / low energy consumption ratio in the market.

Biological Bank® (registered trademark by KW), with two independent refrigerating systems operating alternately to ensure the -86°C preservation in case one of the two systems fails.

Medical devices for the management of blood and its derivatives: shock plasma freezers, plasma storage freezers (-80°C/-20°C), plasma thawers, platelets incubators and agitators. The thawer is covered by European patent (Registration N° EP2510965) for plasma and staminal cells thawing.

The traceability of all the process is possible by an innovative HMI and a complete connectivity with the BAS. High stability and uniformity of the temperature is guaranteed thanks to the heavy technology research.

POTENTIAL

The Biobank sector is the new goal for which KW wants to become a landmark.

KW is growing and is expanding the production site to increase the production of 50% to satisfy the global needs and to let the production of special products for new different applications.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity

OTHER INFO:

Contacts:

Via della Resistenza 117-119, 53035 Monteriggioni (Siena)

info@kwkw.it

www.kwkw.it

LABORATORI ALIVEDA S.R.L.

Laboratori Aliveda, was established in 2013 in the countryside of Pisa, as a small manufacturer family company with the passion towards natural health products. The company develops, produces and commercializes food supplements for psychophysical well-being and quality of life improvement. Over the years, the company has grown a lot, up to a significant breakthrough in 2018 with the inauguration of a new advanced production facility developed to provide customers with higher quality standards and advanced production technologies. The manufacturing site is HACCP certified, and the management system is ISO 9001/2015 certified.

ACTIVITY

The strength of the company is certainly the ability to manage the entire production process of natural food supplements: research and development, formulation, production, quality control and marketing; However, R&D remains the corporate asset that distinguishes it and represents its growth engine. As a matter of fact, Aliveda stably collaborate with the University of Pisa, supporting young researchers, and developing projects for in vitro, in vivo and multicentre clinical trials, especially in neurological field.

TECHNOLOGY AND PATENTS

Thanks to ongoing research, Aliveda developed two patents obtained in Italy: the first, a patent concerning a production technology that greatly improves the absorption, protection and bioavailability of important active ingredients and the other, a formulation patent, to increase the expression levels of sirtuin I, which has allowed highly innovative products to be placed on the market.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership

OTHER INFO:

Date of foundation: 22.04.2013
Employees: 30

Contacts:

Laboratori Aliveda S.r.l.
Headquarter: Viale K. Wojtyla 19, 56042 Crespina-Lorenzana (PI)
Tel. 050662674
info@aliveda.com
www.aliveda.com





LIQUIDWEB S.R.L.

Liquidweb is a company based in Siena operating in the HCI (Human Computer Interface) sector. The company believes that technological innovations should lead to an improvement in people's quality of life and starting from this belief Liquidweb has developed BrainControl, a range of solutions designed for people with severe disabilities.

The BrainControl project has received funds from the European Union thanks to the Horizon2020 Research and Innovation Programme (Grant agreement No. 947336). Moreover, in 2020 Liquidweb was awarded the best start-up prize within the Med Tech category of B Heroes, a TV show for innovation and the promotion of new business through mentorship, investments, net-working and communication. Empathy, a willingness to listen and the attitude to cooperation are the core values of the company.

ACTIVITY

BrainControl range of products consists in four different solutions:

BrainControl BCI AAC: thanks to an EEG headset, the specific software and a tailor-made training, the patient will be put in condition to select through thoughts the right answers to specific questions and transfer them to an electronic device (tablet, computer). This solution is designed for patients with serious disabilities but sufficiently intact cognitive abilities such as Amyotrophic Lateral Sclerosis (ALS), Multiple Sclerosis, quadriplegia and other kinds of muscular dystrophies.

BrainControl Sensory AAC: this solution is addressed to patients with residual voluntary movements of the body (eye movements, hand, finger, cheekbone, etc.). Thanks to a variety of sensors, such as eye tracker, motion sensors, mouse emulators, our devices optimise the patient's residual movements to stimulate the interaction with the outside world.

BrainControl Avatar: this solution allows patients to visit from remote installations, museums, exhibition spaces and any kind of events. In a completely independent way, the patient is enabled to command a virtual robotic alter ego, adjusting audio, image and height of the visual field. The experience will be immersive and real, as if patient were visiting in person that specific environment.

BrainControl Smart: BrainControl Smart is a platform that includes tests to carry out an assessment of cognitive aspects and visual skills. In addition to the tests, the platform includes exercises with which it is possible to structure a rehabilitation path; the exercises are also divided by cognitive and visual skills. The platform can be used by any type of patient, including LIS / CLIS thanks to the most common interaction methods such as mouse, keyboard and mouse emulator but also with more advanced methods such as eye pointer and BCI.

TECHNOLOGY AND PATENTS

Registered Patents:

ITA: I0163369 issuance date 16/09/2015
 USA: I1291385 issuance date 05/04/22
 CHI: ZL2016800667169 issuance date 11/03/22
 JAP: 6942120 issuance date 09/09/21

Pending applications:

EURO-PCT
 CANADA

POTENTIAL

Company plans for the future include:

- Developing new features and solutions based on Artificial Intelligence applied to Neuroscience.
- Apply our products/solutions to different business segments in order to expand our market and broaden the audience of end users in Healthcare/ Other sectors.

KEY PARTNERING OPPORTUNITIES

- scientific collaborations
- strategic partnerships
- investment opportunities
- grant search

OTHER INFO

Date of foundation: 2010

Company Size: 8 employees

Contacts:

Via Cesare Maccari 1, 53100, Siena - Italy

Tel: +39 0577 1916187

info@braincontrol.eu

www.braincontrol.eu



PHARMASI S.R.L.

PharmaSi, a company specialized in the field of food supplements, was born from the passion and experience of a group of professionals from leading pharmaceutical companies.

ACTIVITY

The main activity is focused on the creation and sale of nutraceutical products. List: **TIGER PLUS** (Adjuvant in the treatment of hypercholesterolemia and Hyperomocystinemia Prevention of cardiovascular risk); **PROSTASI** (Adjuvant in the treatment of benign prostatic hypertrophy); **LITOCALC** (Natural solution in the treatment of kidney stones); **MAGNESIO** (States of asthenia Fatigue, Cramps, Contractures, Tone of Mood, Prelast Syndrome); **MELURESIO** (Natural solution to recurrent urinary infections); **VENERA** (It intervenes on the venous circulation, on the functionality of the microcirculation and on the drainage of body fluids); **FLUISI** (Adjuvant mucoregulation with fluidifying effect); **POLARIS** (Useful to counteract oxidative stress during pregnancy); **RELAXSI** (Adjuvant for sleep disorders such as difficulty falling asleep, jet lag; Anxious syndrome); **DYNAMO** (Useful in states of fatigue and convalescence, increased energy requirements, sports performance); **OMEGASI** (Adjuvant in the treatment of hypertriglyceridemia).

POTENTIAL (IN 1-3 YEARS)

150% growth.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership

OTHER INFO:

Date of foundation: 2014

Company Size: 6 employees

Contacts:

c/o TLS Incubator - Strada del Petriccio e Belriguardo 35,
53100, Siena - Italy - Tel. +39 329 2434734

info@pharmasi.org

www.pharmasi.org



SATUS S.R.L.

Satus is an operating company of Monte dei Paschi di Siena Foundation (FMPS), active in the field, among others, of scientific and technological research.

ACTIVITY

Satus acts as a partner, acquiring shares of start-ups that conduct research in the field of high innovation, including the biomedical, pharmaceutical and biotechnological industries.

POTENTIAL (IN 1-3 YEARS)

In the next three years, Satus is expected to expand its field of action, becoming a sort of revolving fund for companies with a high potential for innovation, established in the reference territory of the Foundation.

KEY PARTNERING OPPORTUNITIES

- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 2006

Contacts:

Via Banchi di Sotto 34, 53001 Siena - Italy
Tel. +39 0577 246036
marco.forte@fondazionemps.it
(Mr. Forte is the Sole Administrator of the company)



UBT SRL SB (Umbria Bioengineering Technologies)

UBT SRL (Umbria Bioengineering Technologies), born as academic Spin Off of the Department of Physics and Geology of the University of Perugia, Italy, is a biomedical company which develops and commercialises a portfolio of innovative medical imaging devices based on cutting-edge microwave technology instead of dangerous ionizing radiation (X-Rays).

ACTIVITY

UBT has so far developed two different products, which present unique selling propositions (USPs):
A) MammoWave; a novel X-rays free mammogram for breast cancer screening. MammoWave recently got CE Mark approval and ISO 13-485.

USPs are

- USP1: The absence of harmful radiations enables more frequent screenings to a wider population, including young women.
USP2: the breast is not compressed as it is in mammography.
USP3: excellent engineering solution / price-competitive
- B) BrainWave. a novel device for Brain stroke detection and classification. The device is a handy and mobile apparatus that fits into the ambulance setting, allowing examinations prior to the arrival to the hospital.

TECHNOLOGY AND PATENTS

MammoWave's imaging technique employs low power (1 mW) microwaves in the 1-9 GHz band. The device contains two antennas, which illuminate the breast using electromagnetic fields in microwave band and measure the correspondent scattered electromagnetic fields. The screening takes five minutes per breast and is performed with the patient lying in comfortable position.



The technology patented in EU, CHINA, and USA is based on the exploitation of dielectric properties of human tissue, as the contrast between normal/ malignant tissues at microwave frequencies is captured and depicted in the final image, allowing breast cancer detection with accuracy >90%. If augmented by AI, we achieve accuracy >98%.

KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: February 2015
Employees: 10 Employees + 4 PhD and Post PhD Student at London South Bank University funded by UBT SRL

Contacts:

Headquarter: via Santa Maria della Spina 25, Rivotorto di Assisi
Sabatino Tiberi (CEO)
s.tiberi@ubt-tech.com
Mob. 335-7236452
www.ubt-tech.com

VIOH S.R.L.

VIOH S.r.l. delivers at the patients' home state of the art technology for the diagnosis and screening of cancer, with the goal of offering integrated healthcare services for each phase of the cancer patient journey. At its core VIOH has developed a proprietary IT platform.

It also offers primary healthcare services, which are centered on telemedicine and homecare services to free precious time for citizen and healthcare systems.

ACTIVITY

VIOH want to establish people's house as primary place for delivering health and care services. Our business model is based on the central role of the patients and its quality of life and integrates portable molecular diagnostics with digital medicine tools.

VIOH offers both basic telemedicine & homecare services, according to citizen and patients needs, and screening, molecular diagnostics and follow up services for patients with cancer, in close link with the prognostic plans and according to the refence oncology healthcare.

TECHNOLOGY AND PATENTS

VIOH is a service company and does not own patents.

POTENTIAL (IN 1 YEAR)

In the first semester of 2023, the company will approve the new business plan which will contain the reinforcement of its services for the private sector, in addition to the public sector. In the second semester of 2023, we will develop the management structure with the goal of implementing the approved business plan and generate income by the first quarter of 2024.



KEY PARTNERING OPPORTUNITIES

- scientific collaboration
- strategic partnership
- investment opportunity
- grant search

OTHER INFO:

Date of foundation: 30.6.2021

Company size: start up

Contacts:

Legal address: Via Francesco Saverio Nitti, 18 - 00191 Roma - Italy
info@vioh.it
www.vioh.it







Fondazione Toscana Life Sciences
Via Fiorentina 1, 53100 Siena tel. +39 0577 231211