

# ONE-HEALTH Lab

## RESEARCHERS

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## DIPARTIMENTO

Biotechnologie Chimica e Farmacia

## LAB

ONE-HEALTH Lab (Biochemistry and bioinformatics)

## Research activity



Our research activity adopts a ONE-HEALTH approach while applying post-genomics (proteomics, metabolomics), cell biology, biochemistry, computational biochemistry and AI in Life Sciences, sustainable pharmaceuticals and circular bioeconomy.

Main application fields:

- 1) Comprehension of the physiopathological mechanisms of rare diseases to identify novel and innovative diagnostic and therapeutic approaches (included *orphan drug designation*) of precision medicine by means of experimental biological preclinical studies and clinical trials, with generation of digital integrated ecosystems AI-evolved for patients' data management.
- 2) Experimental approaches of circular bioeconomy for agrifood sustainability through the use of waste to obtain secondary/tertiary added-value novel products: bioactive compounds for biocosmesis, nutraceuticals, novel and functional food, drugs, antibiotics, bio-phytostimulants for biological eco-sustainable agriculture and innovative biomaterials and materials (biopackaging, green building etc).

GRANTS (last 5 years)

FP7-HEALTH-2012-INNOVATION-1 Clinical Development of Nitisinone for Alkaptonuria

Regione Toscana: PSR 2014-2020 (2015), Bando Nutraceutica 2014-2016, BANDI PIF Progetti Integrati di Filiera (PIF) Agroalimentare (2017), Bando Salute 2018

Regione Toscana PROGETTI DI RICERCA NEL SETTORE NUTRACEUTICA - Studio degli effetti del silicio della birra della Val d'Orcia per il trattamento dell'osteoporosi e dell'osteoartrosi 2014-2016

BANDI PIF, PSR 2014-2020 della Regione Toscana, Annualità 2015 "OPENRICCIO-Ottenimenti di Prodotti Evoluti e Nuovi cosmetici e Ricognizioni Interattive per Catasto Castanicolo Ordinario

Ministero dell'ambiente e della tutela del territorio e del mare MATTM CUP B68D19000040001 (2018) 2019-2023

MISE-Programma Progetti Proof of Concept 2020 POCARNO: Sviluppo di nuovi inibitori di HPPD per il trattamento di tirosinemie-SNIHTT febbraio 2021 agosto 2022

Effects of monoacylglycerols in colorectal tumors (MAGIC) Bando Salute Regione Toscana 2018

Progetto USALI Bando PIF Agroalimentare 2017 Lieviti enologici autoctoni: USALI! - Utilizzo e sostenibilità ambientale dei lieviti indigeni

MISE-Bando "Fabbrica intelligente, Agrifood e Scienze della vita" Fondo per la crescita sostenibile - "Laboratorio 4.0 per la produzione di vaccini e biofarmaci"

FEBS Science and Society 2020 - How the first human genetic disease may show the way forward Precision medicine - The case of the ultra-rare disease Alkaptonuria and ApreKure digital ecosystem

"CHEBAPACK" "CHESTNUT SHELL BIO BASED PACKAGING BIO PACKAGING CON RICCI DI CASTAGANO", GAL FAR Maremma S.c.a.r.l.

Fondo crescita sostenibile - MISE - Settore applicativo "Scienze della Vita" - Proposta progettuale n. 2261, "MISS THAI - Molecular Interaction Studies Through Artificial Intelligence"

EU Erasmus+ 2022 KA210-VET - Small-scale partnerships in vocational education and training- BIOMED+ Raising youth awareness on microbiota towards the creation of VET pathways

EU Erasmus+ Intercept - Motivating mobilizing supporting needs green career pathway (PUG, Malta, Lituania, Slovacchia, Lussemburgo)

EU Erasmus+ KA210-ADU - Small-scale partnerships in adult education Raising the awareness and increasing the competences of Adult learners on Microbiome applications

Prin 2022 BIO-WASTE PRODUCTS AS A SOURCE OF NUTRACEUTICALS TO TARGET THE COMMON TRAIT OF INFLAMMATION IN CANCER AND NEURODEGENERATION

Bando PNRR 2022 codice: P2022RYR5W - A precision medicine ecosystem for Alkaptonuria through clinical and experimental knowledge management and sharing system for an integrated approach

MITE - Bando per il cofinanziamento di progetti di ricerca volti allo sviluppo di tecnologie per la prevenzione, il recupero, il riciclaggio ed il trattamento di rifiuti non rientranti nelle categorie già servite da

consorzi di filiera, all'ecodesign dei prodotti ed alla corretta gestione dei relativi rifiuti - Edizione 2021-DD EC n.86 del 7 settembre 2023 - Ministero per la Protezione Civile e le Politiche del Mare -

Bioeconomia circolare di Posidonia oceanica depositata su spiagge - progetto pilota per la produzione di una piattaforma prototipale multiprodotto ecodesignata in ottica One Health

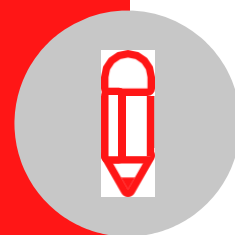
MASAF - Contratto di Filiera "BON.TA": Buone pratiche per lo sviluppo della produttività, sostenibilità e redditività della filiera biologica La Cesenate- Alce Nero di cui all'art. 66, comma 1, della legge

27.12.2002 n. 289, Decreto MIPAAF n. 0673777 del 22/12/2021 e dall'Avviso n. 0182458 del 22/04/2022 - Prot. N.0337577 del 29/07/2022"

ERICA Ecosistema di trasferimento tecnologico per Risorse naturali Integrate con Circular Economy e Agricoltura (Agenzia per la Coesione Territoriale)

PNRR - THE - LEAD. SPOKE 6 - CUP B63C22000680007 - PNRR - THE - TUSCANY HEALTH LEADER SPOKE 6 - Identification of novel markers

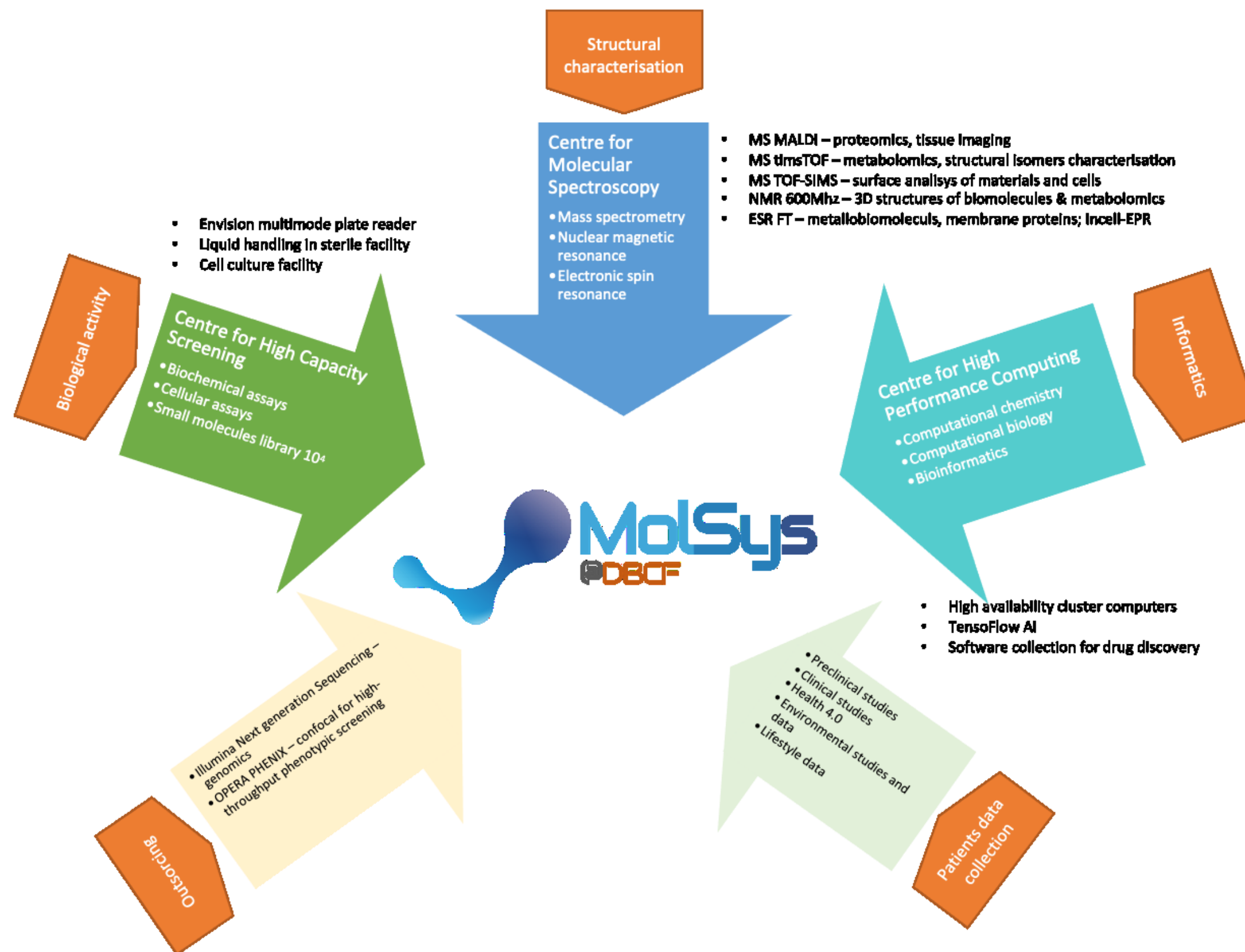
Images



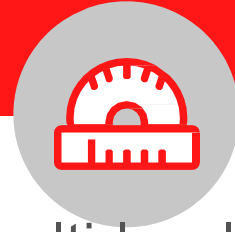
# 'OMICS@MOLSYS@DBCF

## Molecular Systems Technology Platform

will offer characterization of molecular systems at many levels:



## Technologies and services



MolSys@DBCF is an integrated technological platform for the multi-level analysis of molecular repertoires, including:

Computational omics, HPC and AI

Proteomics, 2D-PAGE, Image analysis, bottom-up MS (Bruker UltrafleXtreme MALDI-TOF/TOF, sw Proteinscape; MALDI Imaging con software SCILS, sprayer ImagePrep)

Metabolomics: NMR 600 MhZ, LC/MS Bruker timsTOF, HPLC EluteTrapped Ion Mobility/Quadrupole/Time of Flight, sw MetaboScape 4.0, TASQ 2.0, Wiley Metlin Mass Spec database e Bruker HMDB metabolite library 2.0.

High-throughput screening platforms, HTS for Drug Discovery a multiple assays (in vitro and ex vivo). I4.0 Integra robots, TR-FRET (Envision e CLARIOstar Plus), cell culture facilities.

## Applications and collaborations



ONE-HEALTH Lab has projects and collaboration with:

Alce Nero, TLS, ARTES 4.0 (macronode Life Sciences) e ISAAC (coordination), LifeCARES, Cluster nazionali SPRING-ALISEI-BIG, CNR, CERB PG, SAIHub, Polo Universitario GR, Grosseto Sviluppo, ITS VITA, ITS EAT, ITS MITA, Re-CORD, NEXT Technologies, PRIMA, Anima Aurea, CERTEMA, AchilleS Vaccines, TheBioARTE, LSH, AdF, MUR, MIPAF, MITE, MISE, MASAF, DIESSE, Philogen.

ONE-HEALTH Lab generated SienabioACTIVE, bioeconomy Spin-Off of Siena University, benefit company, start up with women leadership, producing innovative bio-based ecosustainable pro-functional products derived from agrifood, forest, marine waste.

ONE-HEALTH Lab offers collaboration and services for:

- 1) Preclinical studies and clinical trial especially for rare disease and *orphan drug designation* fro the development of novel drugs
- 2) Production of digital integrated AI-evolved ecosystems for patients data management
- 3) Exploitation of biological waste for its transformation in ecosustainable innovative added-values prototype products

For more information



## Tech Transfer Office of University of Siena

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For more information



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Logo

