



**The Strasbourg Drug Discovery and Development Institute (IMS)** is based on 3 pillars federating research activities (Medalis), training (EURidis) and innovation / technology transfer (INEDis), all centered on the discovery and development of new drugs.

Eleven academic research teams<sup>1</sup> form the IMS, each providing conceptual and technological bases for therapeutic innovation and having demonstrated previous activity of valorization and transfer. Thanks to a recognized fundamental research

activity and well-established national and international networks, IMS aims at developing finalized projects from the entire Strasbourg scientific community, ranging from *in silico* studies to setting up of preclinical studies, the creation of intellectual property, legal aspects, the setting up of industrial partnerships and the creation of companies. The field of interest is focused on small molecules and peptides for therapy, diagnosis and related technologies.



Since 2011, the Laboratory of Excellence Medalis has enabled its stakeholders to carry out fundamental research of high added value (More than 600 publications, 14 patents of which 4 are licensed), to generate a pipeline of potential drugs or advanced technologies for the treatment of cancer and inflammation. Six start-ups have been created and 2 more are in the last phase of incorporation for the year 2019. In the continuity of the existing LabEx that proved its effectiveness, **the first pillar of the IMS (Medalis)**, will continue its streamline action to fund high added value projects in the field of drug discovery and development while widening its

finalized field to all therapeutic areas. Medalis will continue to launch annual calls for proposals open to the entire academic community of Strasbourg and, using its resources, will apply to relevant national/international calls. As in the past, all submitted projects will be rigorously evaluated by international external experts as well as by a scientific advisory board consisting of academics/clinicians, and industry and IP representatives. The stated objective of the IMS is ambitious: it aims at transferring at least one asset per year over the next 8 years, either through a licensing to biotech/big pharma, or *via* the creation of a start-up.



**The second pillar of the IMS (EURidis)** will offer, according to the model of a University Research School (EUR program), a training course in line with the key words, vision and spirit of the IMS: working in multidisciplinary teams, innovation and technology transfer. Open to students enrolled in Master programs in biology, medicine, chemistry, biotechnology, physics, law and regulatory processes, the training is organized under the form of thematic schools and workshops.

**The Drug Discovery and Development (DDD) Challenge** is the key step for this training period with the possibility for students to obtain the funding of their thesis plus a dedicated operating budget to start the DDD research project they have to build, elaborate, and defend from a yearly identified medical need. This education program preparing students for the international competition will give an important place to industrial mentoring in order to increase the employability of the students. EURidis will benefit from an advisory council of international experts to remain at the forefront of educational innovation.



**The third pillar of the IMS (INEDis)** will propose structuring and supporting actions for the creation of companies from IMS programs or from partner teams. INEDis' main action line will consist first of all in ensuring a post-maturation relay by structuring and hosting (open-lab actions) the operational teams of the future/young companies of the IMS. INEDis will then invest in the initial funding of these new companies. INEDis will develop deep relationship with the neighboring socio-economic world and will conduct fund-raising actions in close collaboration with existing local dedicated agencies (i.e. the start-up incubator SEMIA and the technology

transfer office SATT Conectus, "réseau entreprendre") as well as with an external board that will be set up as soon as INEDis is created. The members of this expert council will comprise recognized and experienced entrepreneurs, investors, lawyers and key players from the socio-economic world. By advising INEDis, this council will play an active role in the construction of the INEDis support plan, the development of its business model and in the process of recruiting key peoples for future IMS companies.

**National and international collaborations** IMS aims at developing strong joint programs first envisioned at the level of education. EURidis will open the challenge DDD to students coming from different universities to improve the talent pool. From this early implication of young researchers in DDD, a secondary action line will be to initiate common research programs dedicated to technology transfer between Medalis labs and new partner labs hosting the new projects. A first round of collaborative actions will be initiated with Marseilles (another University of Excellence in France), Freiburg and Karlsruhe (Germany), Basel and Bern (Switzerland), Okayama (Japan) and Quebec (Canada).

**Keywords** Drug discovery and development, small molecules and peptides, pre-clinical studies, multi-disciplinary training, interdisciplinary graduate school, technology transfer, start-up creation

#### <sup>1</sup>Teams:

Neuroimmunology and peptide therapeutics: Sylviane MULLER (UMR 7242 CNRS-Unistra) ● Immune-microenvironment interaction in health and disease: Christopher MUELLER (UPR 3572 CNRS) ● Integrative chemical biology and pharmacognosy: Dominique BONNET (UMR 7200 CNRS-Unistra) ● Chemogenomics and Medicinal Chemistry: Didier ROGNAN (UMR 7200 CNRS-Unistra) ● GPCRs in Pain and Inflammation: Frédéric SIMONIN (UMR 7242 CNRS-Unistra) ● Poly(ADP-ribosylation) and Genome Integrity: Françoise DANTZER (UMR 7242 CNRS-Unistra) ● Biofunctional Chemistry: Alain WAGNER (UMR 7199 CNRS-Unistra) ● Molecular Mechanisms and Targeted Therapeutic Intervention for Neuroprotection: Dominique BAGNARD (U1119 INSERM) ● Platform of chemical biology in Strasbourg: Pascal VILLA (UMS 3286 CNRS-Unistra) ● BioOrganic Mass Spectrometry: Sarah CIANFERANI (UMR 7178 CNRS-Unistra) ● Molecular Imaging: Frédéric BOISSON (UMR 7178 CNRS-Unistra).