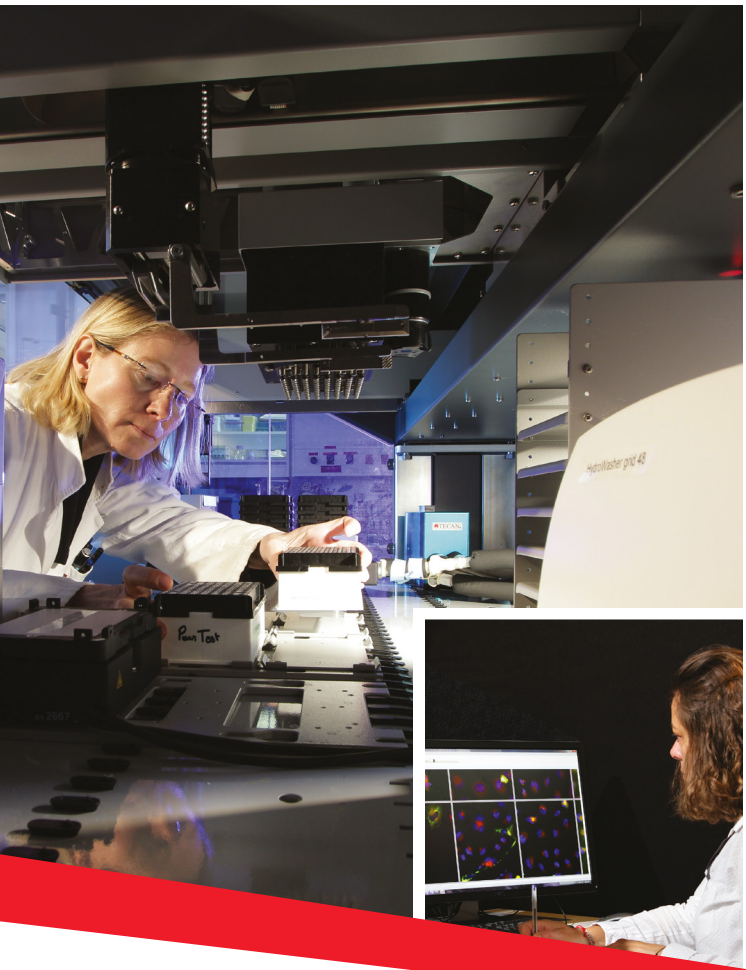
Platform CMBA

Seeking bioactive compounds

Exploring the chemical space for health and life sciences

The screening platform for bioactive molecules is a pioneering Drug Discovery platform in Auvergne-Rhône-Alpes, member of the national infrastructure ChemBioFrance and labelled by the IBiSA scientific interest group. It supports your academic or industrial research projects for the selection of bioactive molecules and drug candidates in all health sectors.



Expertises

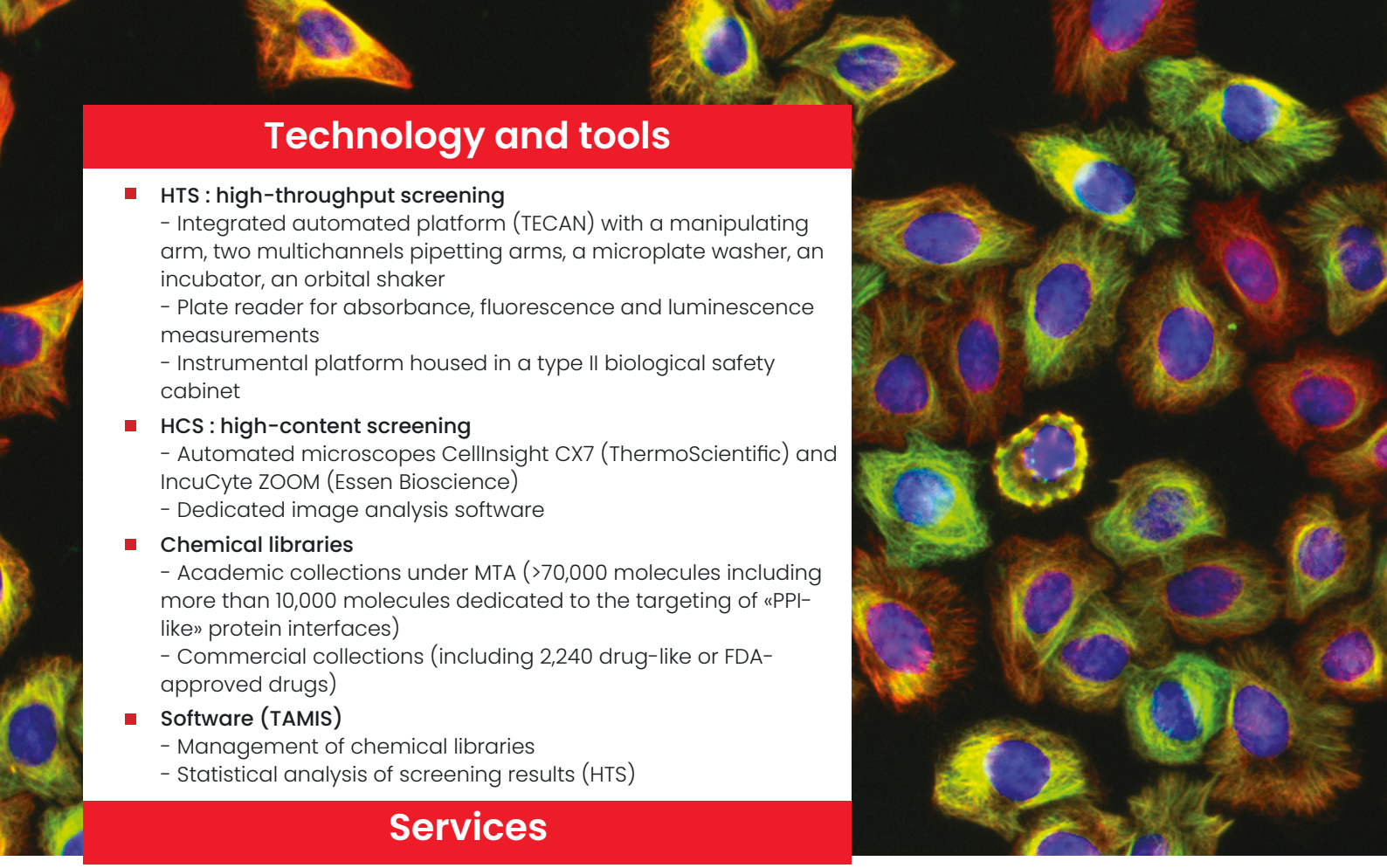
- **Miniaturization**
  Biological assays in microplate format adapted to automated screening
- **High throughput screening (HTS)**
  Collections of 1,000 to 70,000 molecules
  In vitro assays(enzymatic assays, protein-protein interaction assays, etc.) *In cellulo* assays (viability, metabolism, phenotypes,...)
- **High content phenotypic screening (HCS)**
  Automated imaging on living or fixed cells (immunofluorescence, biomarker, fluorescent probes,...)
- **Hit selection and profiling**
  Dose-response analyses
  Cytotoxicity on various cell models
  Bioactivity on therapeutic target or living cells
- **Medicinal chemistry expertise**
  Partnership with Grenoble Alpes University (GAP2D consortium)

Focus

High content screening and high content analysis

The CMBA platform develops phenotypic assays dedicated to automated imaging on various cell models (normal or transformed cells cultured in 2D or 3D).
This technology helps you to characterize the activity of oriented collections (100 to 2,000 molecules) on physiological or pathological cellular processes (cell growth and differentiation, cytoskeleton, autophagy, endocytosis, inflammation,...) for applications in health or basic research (infectiology, oncology, rare diseases, neurodegenerative diseases,...).

> When the biological target of a given hit is unknown, this systematic phenotypic profiling provides precious information for the identification of the target.



Technology and tools

- **HTS : high-throughput screening**
  - Integrated automated platform (TECAN) with a manipulating arm, two multichannels pipetting arms, a microplate washer, an incubator, an orbital shaker
  - Plate reader for absorbance, fluorescence and luminescence measurements
  - Instrumental platform housed in a type II biological safety cabinet
- **HCS : high-content screening**
  - Automated microscopes CellInsight CX7 (ThermoScientific) and IncuCyte ZOOM (Essen Bioscience)
  - Dedicated image analysis software
- **Chemical libraries**
  - Academic collections under MTA (>70,000 molecules including more than 10,000 molecules dedicated to the targeting of «PPI-like» protein interfaces)
  - Commercial collections (including 2,240 drug-like or FDA-approved drugs)
- **Software (TAMIS)**
  - Management of chemical libraries
  - Statistical analysis of screening results (HTS)

Services

- **Development of automated assays**
- **Complete management of the screening compaigns**
  Realization of primary and secondary screens on *in vitro* or *in cellulo* assays, with your proprietary libraries or with our collections of compounds
- **Analysis of the results**
  Provision of a detailed screening report and advice on characterizing the bioactivity of hits

Highlights

PCT/EP2017/069919 - WO/2018/029137
Heterocyclic naphtoquinones derivatives for use in the treatment of cancers and Cushing's disease

Quantitative Automated Assays in Living Cells to Screen for Inhibitors of Hemichannel Function.
Soleilhac, E., Comte, M., da Costa, A., Barette, C., Picoli, C., Mortier, M., Aubry, L., Mouthon, F., Fauvarque, M.-O. and Charvériat, M. 2021. SLAS Discovery. 26(3):420-427. DOI: 10.1177/2472555220954388.

High-Content Screening Identifies New Inhibitors of Connexin 43 Gap Junctions.
Picoli C., Soleilhac E., Journet A., Barette C., Comte M., Giaume C., Mouthon F., Fauvarque M.-O., Charvériat M. 2019. Assay Drug Dev Technol. 17(5):240-248. DOI: 10.1089/adt.2019.927

Identification of chemicals breaking the USP8 interaction with its endocytic substrate CHMP1B
Journet A., Barette C., Aubry L., Soleilhac E., Fauvarque MO. 2022. . SLAS Discovery. 27 ; 395–404. DOI: 10.1016/j.slasd.2022.08.003

irig.cea.fr

Interdisciplinary Research Institute of Grenoble
CEA-Grenoble
17 avenue des Martyrs
38054 Grenoble cedex 9

TO DEVELOP YOUR PROJECT
http://www.cea.fr/drf/irig/Plateformes/CMBA

SCIENTIFIC DIRECTOR
Marie-Odile Fauvarque / 04 38 78 36 37 / Marie-odile.fauvarque@cea.fr

HEAD OF HTS PLATFORM
Caroline Barette / 04 38 78 66 71 / Caroline.barette@cea.fr

HEAD OF HCS-HCA PLATFORM
Emmanuelle Soleilhac / 04 38 78 52 58 / Emmanuelle.soleilhac@cea.fr

2023 - conception : Irig communication unit - photos credits : CEA/ P. Avavian