



Unit director

Marie-Paule Teulade-Fichou

Unit deputy director

Florence Mahuteau-Betzer

The central activity of the CMBC unit is to develop small molecules to probe and control the biological activities of key targets involved in cancer. These are non B-nucleic acid structures (G-quadruplexes, Abasic sites, ...) and proteins (TAM kinases, non B-nucleic acid structures interacting proteins, ...).

The drug and probe discovery activity is sustained by molecular modelling approaches and imaging. The CMBC unit is hosting the Institut Curie-CNRS proprietary library comprised of over 9000 chemical compounds.

The main research themes of the unit include:

- Design and synthesis of G-quadruplex targeting agents for probing, imaging and mapping
- Design, synthesis and studies of novel small-molecule ligands and probes able to recognize unusual DNA and RNA structures
- Screening approaches and rational design for the synthesis of kinase inhibitors
- Identification of radiosensitizing molecules for the treatment of cancers and determination of their molecular mechanisms of action

The main methodological approaches are :

- Chemical biology
- Medicinal chemistry (Hit to lead optimization)
- Biophysics and Biochemistry of nucleic acids

- Molecular dynamics and virtual screening
- Cellular biology & radiosensitization

Key publications

Year of publication 2020

Leandro H. Zucolotto Cocca, Luis M. G. Abegão, Lucas F. Sciuti, Roxane Vabre, Jonathas de Paula Siqueira, Kenji Kamada, Cleber R. Mendonca, Sandrine Piguel, and Leonardo De Boni (2020 Jun 11)

Two-Photon Emissive Dyes Based on Push-Pull Purines Derivatives: Toward the Development of New Photoluminescence Bioprobes

The Journal of Physical Chemistry C : 124 : 12185-12864 : [DOI : 10.1021/acs.jpcc.0c01859](https://doi.org/10.1021/acs.jpcc.0c01859)

Mathieu E., Bernard A.S., Quévrain E., Zoumpoulaki M., Iriart S., Lung-Soong C., Lai B., Medjoubi K., Henry L., Nagarajan S., Poyer F., Scheitler A., Ivanovic-Burmazovic I., Marco S., somogyi a., Seksik P., Delsuc N., Policar C. (2020 May 29)

Intracellular location matters: rationalization of the anti-inflammatory activity of a manganese (II) superoxide dismutase mimic complex

Chem. Commun. : Accepted Manuscript : - : [DOI : 10.1039/D0CC03398G](https://doi.org/10.1039/D0CC03398G)

Stéphanie Lemaître, Florent Poyer, Paul Fréneaux, Sophie Leboucher, François Doz, Nathalie Cassoux, Carole D Thomas (2020 May 1)

Low retinal toxicity of intravitreal carboplatin associated with good retinal tumor control in transgenic murine retinoblastoma.

Clinical & experimental ophthalmology : 48 : 500-511 : [DOI : 10.1111/ceo.13711](https://doi.org/10.1111/ceo.13711)

Rahima Chennoufi, Ngoc-Duong Trinh, Françoise Simon, Guillaume Bordeau, Delphine Naud-Martin, Albert Moussaron, Bertrand Cinquin, Houcine Bougherara, Béatrice Rambaud, Patrick Tauc, Céline Frochot, Marie-Paule Teulade-Fichou, Florence Mahuteau-Betzer & Eric Deprez (2020 Apr 23)

Interplay between cellular uptake, intracellular localization and the cell death mechanism in triphenylamine-mediated photoinduced cell death

Scientific Reports : 10 : 6881 : [DOI : 10.1038/s41598-020-63991-9](https://doi.org/10.1038/s41598-020-63991-9)

Michela Zuffo, Aurélie Gandolini, Brahim Heddi, Anton Granzhan (2020 Apr 20)

Harnessing intrinsic fluorescence for typing of secondary structures of DNA

Nucleic Acids Research : 48 : e61 : [DOI : 10.1093/nar/gkaa257](https://doi.org/10.1093/nar/gkaa257)



UMR9187 / U1196 – Chemistry and Modelling for the Biology of
Cancer (CMBC)

Biology & Chemistry of Radiations, Cell Signaling and Cancer

Julie Le Bescont, Chloé Breton-Patient et Sandrine Piguel (2020 Apr 16)

**Unconventional Reactivity with DABCO-Bis(sulfur dioxide): C-H Bond
Sulfenylation of Imidazopyridines**

European Journal of Organic Chemistry : 2020 : 2101-2109 : [DOI : 10.1002/ejoc.202000112](https://doi.org/10.1002/ejoc.202000112)