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## **The prevention of genomic instability and cancer depends on the optimal functions of a complex network of pathways collectively called the DNA damage response (DDR).**

The research activities of our unit span several aspects of the DDR, intracellular signalling and genome stability in response to genotoxic stress, either from endogenous sources (e.g. replication stress, mutations in oncogenes and tumor suppressor genes) or from exogenous sources (e.g. oxidative stress, chemotherapeutic agents, ionizing and UV radiation).

We are particularly interested by the functional relationships between what we call the “**6Rs**”: **R**eplication, **R**epair, **R**ecombination, **R**NA biology, **R**edox regulation and responses to **R**adiations.

We specifically want to focus on:

- The network of cellular responses to exogenous and endogenous stresses,
- The influence of cell stress responses on cancer susceptibility and treatment efficacy,
- The hijacking of stress-induced responses for the development of new anti-cancer therapies.

The wide range of expertise of our teams in molecular and cellular biology, genetics and biochemistry allows us to address these issues by using a great variety of technological approaches and several model systems (yeast, mammalian cell lines, animal models).

## Key publications

### Year of publication 2019

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Judith Souphron, Satish Bodakuntla, A S Jijumon, Goran Lakisic, Alexis M Gautreau, Carsten Janke, Maria M Magiera (2019 Apr 19)

**Purification of tubulin with controlled post-translational modifications by polymerization-depolymerization cycles.**

*Nature protocols* : [DOI : 10.1038/s41596-019-0153-7](https://doi.org/10.1038/s41596-019-0153-7)

Matthieu Gratia, Mathieu P Rodero, Cécile Conrad, Elias Bou Samra, Mathieu Maurin, Gillian I Rice, Darragh Duffy, Patrick Revy, Florence Petit, Russell C Dale, Yanick J Crow, Mounira Amor-Gueret, Nicolas Manel (2019 Apr 1)

**Bloom syndrome protein restrains innate immune sensing of micronuclei by cGAS.**

*The Journal of experimental medicine* : [DOI : jem.20181329](https://doi.org/10.1083/jem.20181329)

### Year of publication 2018

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Elie Hatem, Sandy Azzi, Nadine El Banna, Tiantian He, Amélie Heneman-Masurel, Laurence Vernis, Dorothée Baille, Vanessa Masson, Florent Dingli, Damarys Loew, Bruno Azzarone, Pierre Eid, Giuseppe Baldacci, Meng-Er Huang (2018 Nov 20)

**Auranofin/Vitamin C: A Novel Drug Combination Targeting Triple-Negative Breast Cancer.**

*Journal of the National Cancer Institute* : [DOI : 10.1093/ije/djy149](https://doi.org/10.1093/ije/djy149)

Vandana Shashi, Maria M Magiera, Dennis Klein, Maha Zaki, Kelly Schoch, Sabine Rudnik-Schöneborn, Andrew Norman, Osorio Lopes Abath Neto, Marina Dusl, Xidi Yuan, Luca Bartesaghi, Patrizia De Marco, Ahmed A Alfares, Ronit Marom, Stefan T Arold, Francisco J Guzmán-Vega, Loren Dm Pena, Edward C Smith, Maja Steinlin, Mohamed Oe Babiker, Payam Mohassel, A Reghan Foley, Sandra Donkervoort, Rupleen Kaur, Partha S Ghosh, Valentina Stanley, Damir Musaev, Caroline Nava, Cyril Mignot, Boris Keren, Marcello Scala, Elisa Tassano, Paolo Picco, Paola Doneda, Chiara Fiorillo, Mahmoud Y Issa, Ali Alassiri, Ahmed Alahmad, Amanda Gerard, Pengfei Liu, Yaping Yang, Birgit Ertl-Wagner, Peter G Kranz, Ingrid M Wentzensen, Rolf Stucka, Nicholas Stong, Andrew S Allen, David B Goldstein, , Benedikt Schoser, Kai M Rösler, Majid Alfadhel, Valeria Capra, Roman Chrast, Tim M Strom, Erik-Jan Kamsteeg, Carsten G Bönnemann, Joseph G Gleeson, Rudolf Martini, Carsten Janke, Jan Senderek (2018 Nov 12)

**Loss of tubulin deglutamylase CCP1 causes infantile-onset neurodegeneration.**

*The EMBO journal* . : [DOI : e100540](https://doi.org/10.100540)



UMR3348 – Genotoxic stress and Cancer  
**Biology & Chemistry of Radiations, Cell Signaling and Cancer**

Maria M Magiera, Satish Bodakuntla, Jakub Žiak, Sabrina Lacomme, Patricia Marques Sousa, Sophie Leboucher, Torben J Hausrat, Christophe Bosc, Annie Andrieux, Matthias Kneussel, Marc Landry, André Calas, Martin Balastik, Carsten Janke (2018 Nov 12)

**Excessive tubulin polyglutamylation causes neurodegeneration and perturbs neuronal transport.**

*The EMBO journal.* : [DOI : e100440](https://doi.org/10.1093/emboj/e100440)

Caroline Robert, Stéphan Vagner (2018 Nov 1)

**Boosting Immunity by Targeting Post-translational Prenylation of Small GTPases.**

*Cell* : 901-902 : [DOI : S0092-8674\(18\)31385-0](https://doi.org/10.1016/j.cell.2018.10.011)