

Design of 'smart' molecular systems programmed for the delivery of anticancer drugs

Post-doctoral position available in Organic Chemistry / Chemical Biology (18 month)

Institut de Chimie des Milieux et des Matériaux de Poitiers – Equipe E5

Programmed Molecular Systems Team

<http://smp.labo.univ-poitiers.fr>

Subject of research:

Most anticancer drugs used clinically lack any intrinsic antitumor selectivity. In turn, chemotherapy is frequently associated with severe side effects due to the destruction of normal tissues. As a result, the amount of drug that can be administered is usually insufficient to deliver a lethal concentration of anticancer agent at the tumor site. Moreover, the lack of selectivity of cytotoxic drugs dramatically increases the risk of development of cellular resistance by tumor cells. Thus, in view of non-specific toxicity of most anticancer drugs, the development of more selective chemotherapeutic approaches has become a major goal of anticancer research.

Our research group is specialized in the design of 'smart' molecular systems (in particular small molecule-drug conjugates) programmed to allow: (1) the transport in the body of potent anticancer agents in an innocuous manner toward safe tissues, (2) the efficient recognition of malignant specificities located either at the surface of cancer cells or in the tumor microenvironment and (3) the controlled release of the parent drug exclusively at the tumor site.¹ Both the versatility and efficacy of our technology was demonstrated by the preparation of numerous targeting systems which have been evaluated *in vivo* on various tumor models.

The candidate who will be recruited will be in charge of the synthesis of novel 'smart' drug delivery systems, in particular for the therapy of breast cancer.

Candidate profile:

The candidate must have a strong background in the synthesis of complex biocompatible molecular systems, and a solid knowledge of biological processes. A first experience in the field of chemical biology would be appreciated. The candidate must be available to start before June 2018.

Workplace: Institut de Chimie des Milieux et des Matériaux de Poitiers, 4 rue Michel Brunet, 86022 Poitiers.

Application:

CV, covering letter as well as two recommendation letters must be sent by mail to Prof Sébastien Papot: sebastien.papot@univ-poitiers.fr

¹ For some examples see: (a) E. Péraudeau, L. Cronier, A. Monvoisin, P. Poinot, C. Mergault, F. Guilhot, I. Tranoy-Opalinski, B. Renoux, S. Papot, J. Clarhaut *J. Control. Release*. **2018**, 269, 36-44; (b) B. Renoux, F. Raes, T. Legigan, E. Péraudeau, B. Eddhif, P. Poinot, I. Tranoy-Opalinski, J. Alsarraf, O. Koniev, S. Kolodych, S. Lerondel, A. Le Pape, J. Clarhaut and S. Papot *Chem. Sci.* **2017**, 8, 3427-3433 ; (c) S. Kolodych, C. Michel, S. Delacroix, O. Koniev, A. Ekhkirch, J. Eberova, S. Cianféroni, B. Renoux, W. Krezel, P. Poinot, C. D. Muller, S. Papot and A. Wagner *Eur. J. Med. Chem.* **2017**, 142, 376-382 ; (d) R. Barat, T. Legigan, I. Tranoy-Opalinski, B. Renoux, E. Péraudeau, J. Clarhaut, P. Poinot, A. E. Fernandes, V. Aucagne, D. A. Leigh and S. Papot *Chem. Sci.* **2015**, 6, 2608-2613; (e) J. Alsarraf, E. Péraudeau, P. Poinot, I. Tranoy-Opalinski, J. Clarhaut, B. Renoux and S. Papot *Chem. Commun.* **2015**, 51, 15792-15795; (f) T. Legigan, J. Clarhaut, I. Tranoy-Opalinski, A. Monvoisin, B. Renoux, M. Thomas, A. Le Pape, S. Lerondel and S. Papot *Angew. Chem. Int. Ed.* **2012**, 51, 11606-11610; (g) T. Legigan, J. Clarhaut, B. Renoux, I. Tranoy-Opalinski, A. Monvoisin, J.-M. Berjeaud, F. Guilhot and S. Papot *J. Med. Chem.* **2012**, 55, 4516-4520; (h) A. Fernandes, A. Viterisi, V. Aucagne, D. A. Leigh and S. Papot *Chem. Commun.* **2012**, 48, 2083-2085 (i) A. Fernandes, A. Viterisi, F. Coutrot, S. Potok, D. A. Leigh, V. Aucagne, and S. Papot *Angew. Chem. Int. Ed.* **2009**, 48, 6443-6447.