Object: 5-6 months Internship offer (Period March-December 2020)
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# INTERNSHIP OPPORTUNITY

## *PBPK models for nanomedicines*

### Context

Numerous nanosystems have been designed in the two past decades to achieve targeted delivery of drugs to solid tumors. However, therapeutic success of such strategies is still limited. To be more efficient in nanomedicines development, integration of the current knowledge and a better understanding of pharmacokinetic properties of nanosystems are needed.

### Content of the internship

The intern will develop a theoretical mouse nanoPBPK models using Berkeley Madonna sofware and parameters collected from PBPK platforms (PKSim and GastroPlus) and literature, with a focus on tumor compartment modelling. The nanosystems properties (size, charge, cell permeability, tumor spheroids penetration and others) determined *in vitro* will be used as input in the nanoPBPK models to predict organs and tumor kinetics. The nanoPBPK models will be adjusted using *in vivo* mouse data already available in our lab. A parameter sensitivity analysis will allow to determine which nanovector's characteristics need to be optimized to increase tumor targeting efficiency.

### Applicant profile

The ideal applicant will have completed 4 years of higher education. Solid foundations in applied mathematics and a basic training in pharmacology and pharmacokinetics are needed. General knowledge in oncology would be an asset. A taste for mathematics and *in silico* work is mandatory, although some experimental work could also be done if wished.

### Administrative informations

The internship will take place in the SMARTc laboratory at the school of pharmacy of Marseille, France, under the supervision of Dr Florence Gattacceca, Associate Professor. The internship will be founded by an A*Midex grant, which includes travel tickets and 1000€/month income. To apply or for any additional question, please contact Florence Gattacceca by email (florence.gattacceca@univ-amu.fr).