

## Dr. Elisabete CRUZ DA SILVA

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### Research

#### 1) *Bioimaging of cancer biomarkers*

Characterization of tumor molecular signature will allow a more precise and personalized therapy. The use of innovative tools, as aptamers (nucleic acid ligands) or ultrabright nanoparticles, for diagnostics seems to be interesting strategies for more specific, sensitive and fast cancer biomarkers (cell surface receptors or RNA) detection.

#### 2) *Vectorization strategies in cancer treatment*

Vectorization therapies allow the delivery of extremely toxic drugs to cancer cells with less side effects on normal cells. The therapeutic compound can be bioconjugated either to antibodies or aptamers. Moreover, non-physiological endocytosis of cell surface receptors would be an interesting strategy to overcome one the main challenges of vectorization therapies : the complex internalization.

### Education/Career

I was born in Loulé, Portugal, in 1993. I made a technical bachelor where I performed several internships in different pathology services either in Portugal or in Italy. I made my first research internship by characterizing the interaction of lipid nanoparticles with keratinocytes. Next, I specialized on oncology with a master, in which I performed a research internship in the team of Dr. Monique Dontenwill in Strasbourg as a ERASMUS+ student. I continued in the same team for my PhD, where I characterized a non-physiological endocytosis process of cell surface receptors. This strategy can be exploited in vectorisation approaches. I also characterized the use of aptamers for diagnostic proposes in the detection of cancer biomarkers in cancer cells and tissues. My thesis economical potential was valorized with the Challenge Mature your PhD of SATT Conectus. At the moment, I am working in the team of Dr. Andrey Klymchenko. Here, I work with ultrabright nanoparticles for cellular fluorescence in situ hybridization (FISH) of cancer biomarkers.

### Selected publications

-AF. Blandin\*, **E. Cruz Da Silva\***, MC. Mercier, L., O. Glushonkov, P. Didier, S. Dedieu, C. Schneider, J. Devy, N. Etienne-Selloum, M. Dontenwill, L. Choulier, M. Lehmann. Gefitinib induces EGFR and  $\alpha 5\beta 1$  integrin co-endocytosis in glioblastoma cells. Cell Mol Life Science (Nov 2020). DOI: 10.1007/s00018-020-03686-6

-Fechter P.\*, **Cruz Da Silva E. \***, Mercier M.-C., Noulet F. , Etienne-Seloum N., Guenot D., Lehmann M., Vauchelles R., Martin S., Lelong-Rebel I., Ray A.-M., Seguin C., Dontenwill M., Choulier L. RNA aptamers targeting integrin  $\alpha 5\beta 1$  as probes for cyto- and histo-fluorescence in glioblastoma. Molecular Therapy - Nucleic Acids (Sep 2019) DOI: 10.1016/j.omtn.2019.05.006

-**Silva E**, Barreiros L, Segundo MA, Costa Lima SA, Reis S. Cellular interactions of a lipid-based nanocarrier model with human keratinocytes: Unravelling transport mechanisms. Acta Biomaterialia (Avr 2017). DOI: 10.1016/j.actbio.2017.01.057

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