

Postdoctoral research topic

- Title of the proposed topic: **Translating architecture of the tumor extracellular matrix into function**
 - Research axis of the 3iA: **Axis 3 (AI for Computational Biology and Bio-Inspired AI)**
 - **Supervisor** : Ellen Van Obberghen-Schilling, DR1 Inserm (vanobber@unice.fr)
 - Potential co-supervisors: Laure Blanc-Féraud (blancf@i3s.unice.fr); Xavier Descombes (Xavier.Descombes@inria.fr)
 - **The laboratory and/or research group**: Institut of Biology Valrose (iBV), Team 25 « Adhesion Signaling and Stromal Reprogramming in the Tumor Microenvironment »
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Apply by sending an email directly to the supervisor.

The application will include:

- Letter of recommendation of the supervisor indicated above
 - Curriculum vitæ including the list of the scientific publications
 - Motivation letter
 - Letter of recommendation of the thesis supervisor
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- **Description of the topic:**

Applications are invited for a 2-year 3iA Côte d'Azur postdoctoral position in tumor/ECM biology to study functional and structural features of the extracellular matrix (ECM) in the immunosuppressive tumor microenvironment of head and neck cancer. Immunomodulatory therapies are promising for this tumor type, yet resistance rates are high since less than 20% of patients respond. We are specifically interested in exploring the tumor ECM environment, together with immune cell signatures, for gaining mechanistic insights into invasive disease and resistance to immunotherapy. Our previous work on ECM topology has provided a framework for quantitative description and modeling of matrix features associated with disease states. The present project involves functional analysis of matrix components in cell culture models, and quantitative characterization of ECM architecture in human tumor tissue using multiplex immunofluorescence.

Biological studies will be carried out in the [Institute of Biology Valrose](#), a leading Research Center of the Université Côte d'Azur (UCA) equipped with state of the art core facilities and a dynamic and international scientific environment. Computational analyses will be performed in close collaboration with biological image processing experts of the [I3S Laboratory, UCA \(MORPHEM group\)](#) (see postdoctoral position advert, Laure Blanc-Féraud) and clinical partners, thus providing interdisciplinary training at the crossroads of ECM biology, computational biology and cancer research.

- **Profile:**

The candidate is expected to be a creative, quantitatively-minded biologist with a strong background in cell/tissue imaging. Previous experience in tumor biology and the ECM are an advantage. Excellent communication skills, both written and oral, are required.

Further information is available on the 3iA Côte d'Azur [website](#).

- **Selected recent publications** of the host team:

Spel  C et al. Tenascin-C Orchestrates an Immune-Suppressive Tumor Microenvironment in Oral Squamous Cell Carcinoma. **Cancer Immunol Res.** 2020 Sep;8(9):1122-1138.

Efthymiou G et al. Shaping Up the Tumor Microenvironment with Cellular Fibronectin. **Front Oncol.** 2020 Apr 30;10:641.

Efthymiou G et al. Fibronectin Extra Domains tune cellular responses and confer topographically distinct features to fibril networks. **Journal of Cell Science** 2021 : jcs.252957 doi: 10.1242/jcs.252957.