

Studying transport in brain endothelium to create new pathways for brain delivery

The project and the team

Current treatments against brain diseases have very low efficacy due to the low permeability of most drugs across the blood-brain barrier (BBB). Our group at IQS Barcelona aims to unravel the determinants of transport across the BBB and to design new delivery systems based on chemical and genetic approaches.

Our project **Creating an Orthogonal Gate to the Brain (OBGate)** has recently been awarded a prestigious **European Research Council Starting Grant** to develop **new strategies to deliver large therapeutics into the brain with unprecedented efficiency and selectivity**. Within this project, you will engineer brain endothelial cells to understand transcytosis and work on ways to enhance it. This project will involve cell and molecular biology techniques, including engineering proteins in cells, analysis of intracellular protein interactions, and advanced fluorescence microscopy in BBB cell-based models, among others.

You'll be part of a young, dynamic, and international team that aims to push the boundaries of knowledge and to grow and enjoy science together!

Please visit our website www.pptn.iqs.edu and contact us for more information.

Your profile

- PhD degree or background in cellular and molecular biology or related
 - Experience in some of these fields: intracellular trafficking, cell transfection/transduction & differentiation, BBB models, confocal microscopy, synthetic biology, protein engineering, membrane proteins.
 - Strong motivation, proactivity, and creativity.
 - Good social skills to work in a team. Excellent communication skills and fluency in English.
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Fellowship details

- Two years of funding guaranteed with the potential of an extension to a third year.
 - Support to apply for additional funding (e.g. MSCA) with experience as fellow, host, and evaluator.
 - Training opportunities on scientific and horizontal skills. Attendance to international conferences.
 - Space for creativity, with mentorship and team support. Possibility to supervise PhD and MSc students.
 - Proposed starting dates: July or September 2023
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Applications are welcome until the candidate is selected

Applications should be addressed to Dr. Benjamí Oller-Salvia at benjami.oller@iqs.url.edu

Please include "Postdoc OBGate – Your Name" in the subject of your email

The following documents should be combined as a single pdf with your name:

- Motivation letter explaining why you would be a good fit for this position and our team.
- Two reference letters and contact details of the referees who wrote them.
- *Curriculum Vitae* including an explanation of your contribution to your main publications

Generating gene delivery nanosystems to study transport across the blood brain barrier and treat brain diseases

The project and the team

Current treatments against brain diseases have very low efficacy due to the low permeability of most drugs across the blood-brain barrier (BBB). Our group at IQS Barcelona aims to unravel the determinants of transport across the BBB and to design new delivery systems, especially directed to brain tumors, based on chemical and genetic approaches.

Our project Creating an Orthogonal Gate to the Brain (OBGate) has recently been awarded a prestigious **European Research Council Starting Grant** to develop **new strategies to deliver large therapeutics into the brain with unprecedented efficiency and selectivity**. Within this project, you will generate gene delivery nanovehicles based on lipids, peptides, and polymers, for systemic delivery, to transfect brain endothelium or parenchymal cells with high selectivity. You will also work on the development of new stealth coatings and targeting ligands.

You'll be part of a young, dynamic, and international team that aims to push the boundaries of knowledge and to grow and enjoy science together!

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Your profile

- Requirements: PhD degree or background in chemistry or related
 - Experience in the production and characterization of nanocarriers for gene delivery, ideally polymer or lipid nanoparticles, and in chemistry to synthesize and conjugate new polymers, lipids and/or peptides
 - Strong motivation, proactivity, and creativity.
 - Good social skills to work in a team.
 - Excellent communication skills and fluency in English.
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Fellowship details

- Two years of funding guaranteed with the potential of an extension to a third year.
 - Support to apply for additional funding (e.g. MSCA) with experience as fellow, host, and evaluator.
 - Training opportunities on scientific and horizontal skills. Attendance to international conferences.
 - Space for creativity, with mentorship and team support. Possibility to supervise PhD and MSc students.
 - Proposed starting dates: September 2023
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Applications are welcome until the candidate is selected

Applications should be addressed to Dr. Benjamí Oller-Salvia at benjami.oller@iqs.url.edu

Please include "Postdoc GeneDelivery – Your Name" in the subject of your email

The following documents should be combined as a single pdf with your name:

- Motivation letter explaining why you would be a good fit for this position and our team.
- Two reference letters and contact details of the referees who wrote them.
- *Curriculum Vitae* including an explanation of your contribution to your main publications.