

## Research assistant - Peptide and protein therapeutics

We are looking for a highly motivated candidate willing to contribute to the research we pursue with our young and dynamic ChemSynBio team at IQS Barcelona!

### Group

At ChemSynBio ([www.chemsynbio.iqs.edu](http://www.chemsynbio.iqs.edu)), we harness chemical and synthetic biology to create biotherapeutic and biomedical tools, especially to treat brain diseases and to understand brain transport. We aim to conduct groundbreaking research and to grow together!

### Project

In our group we aim to generate highly selective and efficacious **peptide and protein therapeutics by combining rational design, directed evolution, and bioinformatics**. In this position, you will **assist different projects** involving the development of biotherapeutics. In the main project, you will contribute to developing peptide-based **extracellular targeted protein degraders**. In this position, you will apply phage display, next generation sequencing and bioinformatics to guide the selection of new degraders. You will participate in the production of the selected candidates using a peptide synthesizer and testing them in several rounds of optimization. You will also contribute to the development of **proteins with activity on demand** using protein modelling and to the generation of **bioconjugates with the ability to cross the blood-brain barrier**.

### Tasks

- Contribution to **research excellence** at all stages: literature review, experimental design, experimentation, data analysis, and proposal of new research directions.
- **Collaboration** with other researchers and contribution to an **inspiring atmosphere**.
- **Presentation** of results and contribution to preparing reports and scientific **publications**.
- Engagement in **laboratory management** and **team activities**.

### Profile

- Requirement: **master's degree**. Background in chemistry, biotechnology or related.
- Valuable experience: **bioinformatics**, protein production, chemical synthesis
- **Strong motivation, proactivity, and creativity**.
- **Excellent teamwork** abilities.
- **Excellent communication** skills and **fluency in English**.

### Conditions

- **Two years** of funding with the possibility of an extension **or transition into PhD** position.
- **Room for creativity, mentorship & team support**.
- Proposed starting date: **early 2025**

### Applications are welcome until December 31<sup>st</sup> or until the candidate is selected

- Applications should be addressed to Dr. Benjamí Oller-Salvia ([benjami.oller@iqs.url.edu](mailto:benjami.oller@iqs.url.edu)) and Dr. Cristina Díaz ([cristina.diaz@iqs.url.edu](mailto:cristina.diaz@iqs.url.edu)).
- Please include "**RA PTher 2024 – 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 the position and our team.
  - **Curriculum Vitae**
  - Master's and Bachelor's **academic records**
  - Contact details of **two referees**. Reference letters will be valued but not compulsory

## PhD candidate position on gene delivery to the brain

We are looking for a highly motivated candidate willing to pursue a PhD in our young and dynamic ChemSynBio team at IQS School of Engineering - Ramon Llull University in Barcelona!

### Group

At ChemSynBio ([www.chemsynbio.iqs.edu](http://www.chemsynbio.iqs.edu)), we harness chemical and synthetic biology to create biotherapeutic and biomedical tools, especially to treat brain diseases and to understand brain transport. We aim to conduct groundbreaking research and to grow together!

### Project

Current treatments against brain diseases have very low efficacy due to the low permeability of most drugs across the **blood-brain barrier** (BBB). 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 **develop viral and non-viral gene delivery nanocarriers** to transfect brain endothelium or brain tumor cells with high selectivity. You will participate in the **whole development process** of the nanovehicles, from the design, formulation and characterization to the in vitro and in vivo experiments.

### Tasks

- Contribution to **research excellence** at all stages: literature review, experimental design, experimentation, data analysis, and proposal of new research directions.
- **Collaboration** with other researchers and contribution to an **inspiring atmosphere**.
- **Presentation** of results and contribution to preparing reports and scientific **publications**.
- Engagement in **laboratory management** and **team activities**.
- **Training** in technical and power skills. **Student supervision** and training.

### Profile

- Requirement: **master's degree** or the commitment to obtain it by April 2025.
- Background in chemistry, biotechnology, pharmacy or related.
- Optional experience: nanoparticles, viral vectors, cell culture, experimental animals
- **Strong motivation, proactivity, and creativity**.
- Good social skills to work in a **team**.
- **Excellent communication** skills and **fluency in English**.

### Conditions

- Three years of **funding guaranteed**.
- **Training** opportunities on scientific and horizontal skills.
- **Room for creativity, mentorship & team support**. Possibility to supervise students.
- Proposed starting date: **early 2025**

### Applications are welcome until December 31<sup>st</sup> or until the candidate is selected

- Applications should be addressed to Dr. Benjamí Oller-Salvia ([benjami.oller@iqs.url.edu](mailto:benjami.oller@iqs.url.edu))
- Please include "**Predoc 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 the position and our team.
  - **Curriculum Vitae**
  - Master's and Bachelor's **academic records**
  - Contact details of two **referees**. Reference letters may be valued but not compulsory

## Postdoctoral candidate position on synthetic biology to study and improve transport to the brain

We are looking for a highly motivated candidate willing to postdoctoral research in our young and dynamic ChemSynBio team at IQS School of Engineering - Ramon Llull University in Barcelona!

### Group

At ChemSynBio ([www.chemsynbio.iqs.edu](http://www.chemsynbio.iqs.edu)), we harness chemical and synthetic biology to create biotherapeutic and biomedical tools, especially to treat brain diseases and to understand brain transport. We aim to conduct groundbreaking research and to grow together!

### Project

Current treatments against brain diseases have very low efficacy due to the incapacity of most drugs to cross the blood-brain barrier (BBB) and target particular cell populations. We have recently been awarded a highly prestigious grant by the **European Research Council** to understand transport across the BBB and to develop new strategies to deliver large therapeutics into the brain with unprecedented efficiency and selectivity. In your project you will be working on **engineering proteins** in the brain endothelium by **combining synthetic biology and bioinformatic** approaches for high throughput screening on **BBB models**. This project is in **collaboration with Prof. David Baker's** laboratory (Nobel laureate in Chemistry 2024).

### Tasks

- Lead the creation of a **high-throughput screening platform on BBB models**.
- Apply **bioinformatics** and protein engineering to boost the OBGate project.
- **Closely collaborate with other researchers** working on the project and the group.
- Contribution to an **inspiring atmosphere** and engagement in **team activities**.
- **Training, student supervision**, Preparing scientific **publications**.

### Profile

- Requirement: **PhD** degree.
- **Valuable experience**: bioinformatics, molecular/synthetic biology, mammalian cells
- **Strong motivation, proactivity, and creativity**.
- **Excellent teamwork** abilities.
- **Excellent communication** skills and **fluency in English**.

### Conditions

- Two years of **funding guaranteed**.
- **Support to apply for additional funding** (eg MSCA) with experience as fellow+host.
- **Training opportunities** and attendance to international conferences.
- **Space for creativity, with mentorship and team support. Possibility to supervise PhD and MSc students**.
- Proposed starting date: **first half of 2025**

### Applications are welcome until December 31<sup>st</sup> or until the candidate is selected

- Applications should be addressed to Dr. Benjamí Oller-Salvia ([benjami.oller@iqs.url.edu](mailto:benjami.oller@iqs.url.edu))
- Please include "**Postdoc OBGateHT – 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 the **position and team**.
  - Two **reference letters** and contact details of the referees who wrote them.
  - **Curriculum Vitae**