



Chemistry Intern for the elaboration of novel cardiovascular and neurodegenerative diseases molecular imaging candidates

Job description

Founded in 2014, Edinburgh Molecular Imaging (EM Imaging) is a clinical phase biotechnology company focused on enabling image guided therapy. The company's molecular imaging technology, based on Fluorescent Imaging, has the potential to detect disease in real-time during interventional procedures including surgery, providing more accurate treatment while sparing healthy tissue.

As part of its early research programmes, EM Imaging has undertaken to develop novel agents for cardiovascular and neurodegenerative disease imaging. The synthesis of these agents requires a laboratory chemist for the synthesis, purification, characterisation and screening of the candidates for the imaging of the formation of blood clots and thrombosis processes as well as the visualisation of synapses. These two projects will be carried out in collaboration with leading groups at the University of Edinburgh.

The first project (clot imaging) will consist in the solid phase synthesis of peptide and peptide like structures and their subsequent solid phase or solution phase bioconjugation to dyes and/or radionuclides using bioorganic orthogonal chemistry techniques (protecting group, biocompatible reactions etc.). depending on the student's efficiency, the project may also include synthesis of novel dyes for optical molecular imaging and their use in the project. The second project (synapse imaging) will be mostly based on multistep organic chemistry reactions (~10 steps) for the preparation of dye-targeting moiety constructs (Si rhodamine-based compounds).

All students will receive initial training appropriate to their subject followed by detailed demonstration of the activities they will be asked to perform in the lab. Daily interactions with the head of chemistry are guaranteed as well as more in-depth face to face project meetings on a weekly basis. The trainee will be a part of the EM Imaging team and included in all company related social events (team lunches, corporate events, etc.).

Candidate profile

The proposed projects will be tuned to the trainee's skills. The required level to complete the internship is therefore from 3rd year undergraduate students to PhD graduates. Depending on their level, the candidates will be put to contribution on the design of the agents and the chemistry and chemical biology experiments at different levels.

The candidates should however have a chemistry background, ideally practical experience in organic chemistry and solid phase synthesis, bioconjugation, characterisation (HPLC) and purification of peptides, dyes and conjugates.

Learning outcomes

In the first project, the trainee will learn solid phase synthesis of peptides, bioconjugation through orthogonal bioorganic chemistry techniques. Possibly, the trainee will make novel fluorescent dyes using a palette of organic chemistry reactions. In the second project, the student will learn multistep organic chemistry techniques and the handling of highly reactive materials.

In both projects, the trainee will learn how to monitor reactions (TLC, HPLC), characterise the compounds (NMR, HPLC, MALDI and ESI MS) and purify them (crystallisation, semi-preparative HPLC, column chromatography). The students will also be taught how to work efficiently in a multidisciplinary team, how to project manage their activities (defining timelines, plan lab work for the day/week), how to record and communicate their results (lab-book write-up, presentation skills, reports write-up).

Salary

£1,100/month (3-month initial contract)

Closing date

All applications should be received before 15 Feb 2019.

Contact details

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