Scottish High Field NMR Centre - SHF NMR

Prof Uhrin (Edinburgh), Prof Ashbrook (St Andrews), Prof Barlow (Edinburgh), Dr Bell (Edinburgh), Dr Bramham (Edinburgh), Dr Cameron (Beatson), Dr Ellis (Heriot-Watt), Dr Fletcher (Dundee), Prof Jaspars (Aberdeen), Dr Parkinson (Strathclyde), Prof Philp (St Andrews), Dr Schwarz-Linek (St Andrews), Dr Smith (Glasgow)

Scottish High Field NMR Centre (SHF NMR) is part of a National Network for Applications of High-Field NMR in the Life and Physical Sciences. This network of NMR users across Scotland was established following a £1.4 mil upgrade of the Edinburgh 800 MHz NMR spectrometer. The creation of the centre builds on the activities of the Scottish NMR Users Group (SNUG) established in 2014 and draws on the support of ScotCHEM and SULSA. It ensures access to cutting-edge NMR instrumentation for physical and life science researchers based at institutions throughout Scotland. If you wish to use these resources, contact a spectroscopist listed on this poster, or email dusan.uhrin@ed.ac.uk.





Scottish NMR User Group is an association of Scottish NMR laboratories set up to facilitate:



SHF NMR centre equipment

800 MHz AVANCE NEO 4 Channel console

5-mm TCI CryoProbe



- access to NMR spectrometers for academic and industrial users
- sharing of expertise and hardware
- applications for funds to maintain our first-class instruments
- educational activities for academia and industry
- outreach and high school activities.

To achieve these goals, we will issue calls periodically for applications to cover the spectrometer time charges, sample preparation and NMR meeting attendance costs. Please follow the SNUG, ScotCHEM and SULSA web pages for updates.

Technical support: Mr Juraj Bella, Dr Lorna Murray and Dr Daniel Dawson

("inverse" probe, for 3D spectra of proteins)

5-mm TXO CryoProbe (direct detection of ^{15}N , ^{13}C)

Solid state probes:

- $3.2 \text{ mm} \log \gamma$ probe for nuclei with low sensitivity
- 2.5 mm HXY probe for multinuclear correlation experiments
- 1.3 mm HX probe for biological samples and some quadrupolar nuclei.



Bruker Avance III HD 600 MHz

- 5 mm TCI Prodigy Cryoprobe Bruker Avance III HD 400 MHz
- 5 mm SMART multinuclear probe

Prof Marcel Jaspars; <u>m.jaspars@abdn.ac.uk</u>

- To infer the true biological/ecological function of a natural product by careful study of its form using spectroscopic and physicochemical techniques.
- Expertise in small molecule structure determination (up to ~ 4 kDa)



Technical support: Mr Russell Gray & Mr Emanuele Porcu







malaria treatment

- 500 MHz AVANCE III HD 4 channel console
- 5 mm QCI-F CryoProbe 1 H, 13 C, 15 N & 19 F







'Benchtop' NMR in teaching, outreach and research





Dr Kenneth Cameron; k.cameron@beatson.gla.ac.uk

- Structural biology, drug discovery
- Integrated, industry-standard drug discovery programme to translate basic biology research into medicines



for the treatment of cancer.

600 MHz AVANCE III HD 4 channel console • 5 mm QCI-F CryoProbe ¹H, ¹³C, ¹⁵N, ¹⁹F



Dr Brian Smith; <u>brian.smith@glasgow.ac.uk</u>

- Understanding oomplex biological processes at the molecular level using NMR
- Protein structure \bullet
- Protein dynamics
- Protein-protein interactions
- Protein-ligand interactions

Technical support: Dr David Adam





Scottish High Field NMR Centre - SHF NMR

Call to facilitate the use of NMR spectroscopy by Scottish scientists

Deadline*: October 31, 2019 (email to: dusan.uhrin@ed.ac.uk)

Remit:

- To fund preparation of samples for biomolecular NMR investigations such as labelled or unlabelled peptides, proteins, DNA, carbohydrates, biologically active molecules. This could cover consumables, secondments of students to work outside of their home laboratories, etc.
- To fund spectrometer charges on any SNUG spectrometer (not just the 800 MHz of the SHF NMR centre) and also beyond Scotland.
- To fund attendance on NMR conferences

Required information:

- Which SNUG NMR scientist** is your primary collaborator? Scientist outside of SNUG are also eligible.
- Scientific significance (300 words)
- Project timeline, publication (translational) strategy
- Relationship to the existing grants or planned grant applications
- Justification of resources

Limit:

- Applications of the order of few hundreds to few thousand pounds will be considered
- * Similar calls are expected to be repeated in the future.
- **Note that the staff of the SHF NMR centre has limited capacity to engage in interpretation of spectra, hence it is preferable that you find a suitable collaborator if external expertise is required.