**SFC Call for Evidence**
**Independent Review of SFC's Research Pooling Initiative**

This submission was written by Allison Jackson, Executive Director of SULSA on behalf of SULSA, after consultation with the Executive Committee.

**Section 1: Initial research pooling initiative**

***Q1a. What has been the impact of the initial research pooling initiative?***

1. The Scottish Universities Life Sciences Alliance (SULSA) is the life sciences research pooling partnership. Initially founded in 2008 with six members, we have grown to include 10 partner universities (another application pending), representing over 10,000 life sciences researchers.

2. Life Sciences research pooling has certainly met its objectives. Scottish Biosciences research was at a high standard which has continued since 2008 – obtaining 20% of the UK's funding[1] (with 8.3% of the UK population). Our REF results have improved; research outputs for SULSA Universities in Unit of Assessment Biological Sciences, were more than for average UK universities; in REF2014 outputs[2] increased from RAE2008[3] by 52% and 42% respectively for 4* research, and by 25% and 24% respectively for 3* research. We believe that SULSA has enabled Scotland to maintain this level of excellence. SULSA has leveraged over £400M for the life sciences research sector.

3. SULSA synthetic biology support allowed strategic first recruits, for example at the University of Edinburgh (UofE), led to the formation of SynthSys and the Mammalian Centre for Synthetic Biology, and the Genome Foundry. The initial SULSA investment has leveraged £30M for Scotland. Synthetic biology is now a strategic responsive mode priority area for the BBSRC and UofE is now considered one of the major UK hubs for synthetic biology.

4. The existence of the research pools has led to the generation of new 'pools' in Scotland e.g. the Scottish Dementia Research Consortium and the Scottish Metabolomics Network. SULSA members were also instrumental in helping in the successful bid for one of the new Dementia Research Institutes (part of the UK government's £250M investment). SULSA founded the Scottish Metabolomics Facility (now part of Glasgow Polyomics) and kickstarted a wider revolution in small molecule analysis in Scotland. There is now a thriving Scottish metabolomics community which may not have existed on the same scale without SULSA investment; developments were definitely accelerated by SULSA's investment. The same could be said for Drug Discovery – SULSA helped establish the Dundee Drug Discovery Unit (DDU) and National Phenotypic Screening Centres (NPSC), and other drug discovery activities at Strathclyde and Aberdeen.

5. Additionally, it could be argued that the Innovation Centres would not have been established without seeing the success (and learning from the setup) of the research pools.

6. We have connected with several international teams looking to learn from the setup of SULSA. We hosted a visit from Biogenouest (https://www.biogenouest.org) in June 2012, an interregional network of technology platforms in life sciences based in the west-of-France, who wanted to learn from SULSA about the best way to federate research units in their region and co-ordinate their technology platforms to their entire scientific community. We

built an international exchange programme with Hong Kong – where 14 projects were funded (around half in the life sciences). Anecdotally colleagues in England have discussed how SULSA inspired other regional efforts at coordinated research e.g. the N8 research partnership (https://www.n8research.org.uk/). SULSA was also asked to accompany the recent Deputy First Minister's trade visit to India (2018).

7. Capital investment has been a key strategic priority for SULSA since its inception; there are not many opportunities to secure grant funding for large pieces of equipment that are required to keep Scotland at the cutting-edge of research. What was unique was that SULSA also funded Technologists in each of the facilities, so that expert knowledge was available. The Scottish Metabolomics Facility is one example; another area where we have heavily invested in is screening facilities, namely the NPSC (£8M investment), and the DDU. SULSA funded the bid writing for European Lead Factory's successful IMI grant, and has supported an assay development fund and some salaries. The Genome Foundry in UofE has come out of the support for Synthetic biology there.

***Q1b. What lessons can be learnt from the research pooling initiative?***

8. SFC has left the pools to determine their focus, design and implementation. This light-touch approach has meant that the pools all look very different, and by their research focus, they all have differing sizes. For example, SULSA's remit covers more than 10,000 life scientists, while some other pools numbers are in the hundreds. Also, the number of initial university members varied greatly – SULSA had only six, while some of the other pools had 10-15. SUPA has focused on their graduate school (with extremely effective results in capacity building), SULSA on facilities and staff, and ETP (energy) is essentially acting as a mini-Innovation Centre.

9. This light-touch approach has given the pools freedom to be strategic, which has allowed the pools to be relevant to their particular discipline. However, we have felt that at times, we could benefit from a little more SFC interaction – as they are closely connected to government and UKRI. Appointing someone at SFC to chase reports and set up internal (light touch) evaluation may be a good idea, as this would also allow closer oversight of impacts of investment.

10. Joint PhD student programmes have overall been an excellent investment, however they have sometimes failed where the second site input was minimal. Difficulties working between two cities is presumably a major factor in this and so thought should be given to how more support can be given to enhance those collaborations e.g. living expenses to spend time away from home at second site.

11. The growth of new facilities supported by Pools has been outstanding, and this is key support, especially as the number of grants available to fund capital investment are minimal.

12. Appointments in strategic areas important too e.g. systems biology in particular catalysed this area and morphed into SynBio. While 65% of our appointees remain in Scotland, more might have been done to build SULSA relationships into SULSA appointees rather than them simply disappearing into individual University infrastructure.

13. Central belt dominance of SULSA, partly due to the largest Universities (Glasgow and Edinburgh) being there, but Aberdeen, in particular, sometimes felt "peripheral". More effort

could go into mechanisms to include less centrally located institutions, and we are implementing changes to counteract this in future.

14. The various SFC investments could have designed ways of working together at the conception stage, rather than relying on relationships being formed later on – this would have ensured closer working between the pools, ICs, Interface etc.

**Section 2: Pooling now and in the future**

***Q2a. In the current research landscape, what is the perception of, and role for, the pools?***

15. The research landscape is evolving at a rapid pace, and the pools need to ensure they remain 'fit for purpose'. SULSA's remit and membership are broader now, and the focus is bottom up rather than top down. We acknowledge that we were relatively narrowly focused (cell biology, systems and translational research) and that this caused some disquiet in the community. However, we felt that we initially needed to be confined otherwise we wouldn't deliver anything. Additionally, some areas actually voluntarily excluded themselves from the pools, as they had other means of funding. We have listened to our partners and have also taken into account shifting government priorities and developed – we have four new members and much broader themes to ensure we are more inclusive and remain relevant (which we believe we are, as we continue to have more requests by potential new members).

16. Institutions remain committed to pooling, and this is reflected by our increasing membership base, plus some universities have already provided assurance of financial commitment beyond SULSA2.

17. SULSA's strategic priorities have shifted somewhat with the second tranche of funding, and we see the role of SULSA (which differs to some pools – for example SUPA heavily supports postgraduate students through their SUPA Graduate School, and ETP is focused on industrial engagement and perhaps should/could be considered as an Innovation Centre) as fostering collaborative research and generating networks, trying to drive research in specific key areas through pump-priming initiatives, supporting early career researchers and their career development, supporting facilities, and shaping the life sciences policy agenda.

18. We still have facility support at the heart of our remit (in fact we have supported the new Scottish Centre for Macromolecular Imaging and the new Scottish High-Field NMR facility, as well as NPSC and ELF in phase 2).

19. We agree that the pools should be focusing on global challenges, knowledge exchange and internationalisation – all critical issues in the light of Brexit. We have begun to focus more on internationalisation and are currently in discussions with India, Australia and Malaysia about formal research and teaching partnerships. We previously promoted international collaborations with pump-priming funding between scientists in Hong Kong and Scottish Universities in the fields of Life Sciences and Energy (partnership with ETP pool).

20. Interdisciplinary research is key, which is why we believe that 'life sciences', with its multiple areas should remain as a single pool, rather than dividing it up. This does, however come with challenges as we are, by far, the largest pool, and we feel that the level of investment into the pools should be considered relative to their size.

21. Knowledge exchange is now at the forefront of government policy and the pools' activity should reflect this - although it should not be our exclusive activity. The KE landscape in Scotland is cluttered and we believe there needs to be clearer delineation on the role of each organisation. SULSA has partnered with industry previously – we had a joint-PhD programme with MSD where we funded 18 PhD studentships, 6 research fellowships, 36 undergraduate placements and iGEM teams. We also ran the BioSKAPE programme (industry PhD studentships, industry exchanges and masterclasses), and supported and coordinated BBSRC PIPs placements. We currently have an SFC-funded project with SUPA and SINAPSE (physics and medical imaging pools) driving industry-academic projects in optical imaging.

22. We have chosen to focus on postdoctoral early career researchers (ECR) rather than postgraduate students as they often fall through support gaps at Universities. They are under extreme pressure to develop their careers and we also believe that there is a lack of understanding about what a life sciences career can look like. The inclusion of ECR reps in SULSA has created an ECR lead program of funding and skills development that addresses skills gaps ECR have self-identified, with learning from our SULSA1 LEADERS programme.

23. We believe the research pools are the best vehicle for driving initiatives with government. We have also taken a more active role in policy; we have produced several SULSA reports which have been widely shared and used as resources, we are active in the Cross Party Group on Life Sciences, and have a good working relationship with ABPI who are very active in the policy space.

24. Our interactions with other SFC funded initiatives are improving – we work closely with SUPA, SINAPSE and ScotCHEM, and whilst we have relationships with IBioIC and SMS-IC and the other pools, we have not worked together as yet. Together with Interface we have updated their facilities list, however we could improve our interactions with them. The Scottish landscape is quite cluttered and sometimes it has been difficult to know what activities would be duplicating activities, particularly in regard to working with industry. We have also felt that since there are many agencies working on academic-industrial collaborations, that, for the most part, with our very limited staff (1.5 FTE) that we cannot be involved with everything at once, so we have not focused on this (except for our optical imaging project). However, SULSA – through its Executive committee that comprises leading Life Sciences researchers from our member institutes, does have unrivalled knowledge of capabilities present within their member Universities (more so than the KE administrative departments Interface currently approaches in seeking to create these links) and the potential to exploit this is currently not being targeted. Increased cooperation between agencies like "interface" and the pools would be hugely beneficial.

25. SULSA may provide opportunities for teaching (UG and PG) staff sharing (although this would involve large structural changes within individual Universities).

26. More facility sharing would be desirable and a fund to catalyse this (e.g. the equivalent of the assay development fund to enable access to Scotland's facilities e.g. CryoEM, NMR, sequencing, Metabolomics etc.).

***Q2b. Should research pools have a continuing role in the Scottish research base?***

27. Having consulted with our community widely, we believe that research pooling is even more relevant in the current research and innovation climate. In addition, pooling contributes to maintaining competitiveness internationally and this can be better achieved as a collaborative community. Pooling addresses many problems of our time, and the networks and unified voice we have established are key to this. As mentioned above, our opinion in that pool activity needs to reflect the current government priorities – internationalisation, working with industry, and global challenges, and policy development, but we are first and foremost a *research* pool, so we argue that we need to continue our focus on research, the researchers and facilities that support research as well.

28. When the five years funding finishes, we would welcome a further injection into the pools. If the current funding level was maintained (£1.2M), then we would have to continue to be very targeted about our activities – and being able to achieve meaningful interactions with 10,000 researchers is extremely difficult with only 1.5 FTE staff and an annual budget ca. £240k (including salaries).

29. If we had (for example) a £5-8M investment, we would increase our staff base to focus more on internationalisation and knowledge exchange, we would be able to invest more in facilities (it is extremely difficult to get capital funding in this climate, there are very few grants for this), and we would focus on recruiting outstanding international researchers in strategic areas (even more critical now due to Brexit).

30. If we had (for example) a £15-20M investment (unlikely) then we could scale up our activities and run an PhD programme as well. In an era where PhD funding is difficult to obtain, this would be extremely welcome by the community.

31. A repeat injection of the £27m investment that initiated SULSA would be used on areas of particular success (new facility support and support for existing successful facilities e.g. creating user-access funds). Investment into new staff (Professorial and new blood lecturer/researcher level) with mechanisms ensuring cross-institutional SULSA centric activity), PhD programmes across institutes, increased industrial liaison e.g. a similar programme to the IBioIC Business innovation voucher – but from the academic end.

32. Whilst we realise it is unlikely that such an investment will be made, we do think with a modest increase we could achieve far more as we could have greater critical mass. As well, buy-in becomes much easier when we have reasonable amounts of funding to invest in key areas. We could support more applications for technology and infrastructure (which is very difficult to get grant funding for). By leveraging more funding for state-of-the-art equipment, we could enhance research outputs and advancements in therapeutics.

33. If funding were to cease, the consensus is that pooling would not be sustainable long-term. Buy-in from partners would diminish, as well as scope of activities. There is value in keeping pools together, especially now the ground work has been laid in increasing membership and adapting to the new research environment we all now find ourselves in.

**Section 3: Anything else**

34. By all accounts research pooling has been a success and we commend the SFC for supporting such an innovative initiative. It has paved the way for the Innovation Centres and many people outside of Scotland have commented to us on how collaborative Scotland's research environment is. The impact of pooling goes beyond the financial leveraging – and many of its impacts are intangible, but we are confident that Scotland's engaging research communities would suffer if pooling was discontinued. SULSA has made Scotland life sciences more competitive internationally-and this needs to be continued for both societal and economic benefit to Scotland.

References

1. HESA finance records - Research Grants and Contracts by source (2008/09-2016/17)
2. https://www.ref.ac.uk/2014/
3. https://www.rae.ac.uk/datacoll/