

# Response from the Royal Society of Biology to the inquiry on equity in the STEM workforce from the APPG on Diversity and Inclusion in STEM

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The Royal Society of Biology (RSB) is a single unified voice, representing a diverse membership of individuals, learned societies and other organisations. We are committed to ensuring that we provide Government and other policymakers, including funders of biological education and research, with a distinct point of access to authoritative, independent, and evidence-based opinion, representative of the widest range of bioscience disciplines.

The Society welcomes the opportunity to respond to the inquiry on equity in the STEM workforce from the APPG on Diversity and Inclusion in STEM. We are pleased to offer these comments, which have been informed by specific input from our members and Member Organisations across the biological disciplines. Our Member Organisations are listed in the Appendix.

# **Summary of key recommendations**

- For progress to be made, the importance of intersectionality should be acknowledged. Future policies and initiatives should consider the convergence and impact of multiple diversity characteristics on a person's experiences, rather than addressing one characteristic in isolation.
- The Society supports organisations appointing champions across multiple job grades to develop, embed and communicate inclusion and diversity strategies and initiatives throughout the organisation.
- Effective leadership is vital to support the development of an inclusive environment. Acknowledging the
  importance of diversity at board level and leading by example to facilitate and monitor rich and
  meaningful organisation-wide approaches to equality brings benefits for workforce culture and builds
  new opportunities.
- The COVID-19 pandemic has had enormous impacts on universities, charities and other organisations in the STEM ecosystem, and there are worrying indications that this will increase gaps in attainment, opportunity and equality, and decrease the UK's scientific output and growth of the STEM workforce. The Society recognises the opportunity to 'build back better' and learn from our experiences to address inequalities and create an inclusive environment within the STEM sector to allow a diverse future workforce to thrive. Such an opportunity must not be ignored.

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1. What are the demographics of STEM workers in your organisation or sector? Are there gaps in the quality of evidence, monitoring or reporting?

# Our demographics

- 1.1 The Society gathers diversity data on our membership predominantly by means of sampling/voluntary questionnaires investigating all protected characteristics¹ to estimate the composition of our membership, we also assess governance groups. Data is collected via biennial surveys with responses processed in line with the Data Protection Act 2018². These assessments influence our initiatives to encourage diversity and inclusion across the organisation and beyond. Our Biosciences For All initiative³ is a cross-cutting theme of our current Business Plan⁴.
- 1.2 In 2020, we updated our biennial membership data survey to include characteristics beyond protected ones for example estimates of socioeconomic background. We have built new D&I-focused working groups and representative networks which have proved useful discussion fora for our organisational and individual members. The Society has made positive progress with gender diversity having implemented targeted membership drives. However, underrepresentation across known characteristics is pronounced at more senior grades.

### Gaps in evidence, monitoring and reporting

- 1.3 Across the sector, obtaining representative data through voluntary surveys remains challenging. Focused strategy and clear communication of the reasons why we need to collect data is critical for continued improvement. The Society relies upon publicly available datasets of STEM workforces when considering the diversity of the sector. We use these to make reasoned assumptions about similarities and comparisons with our community. We welcome the work of Advance HE on statistical reports<sup>5</sup> using data collected by the Higher Education Statistics Agency<sup>6</sup> and the Scottish Funding Council (when investigating an academic context). UK population data provided by the Office for National Statistics provides a suitable benchmark estimate of diversity data<sup>7</sup> in a national context. The APPG's 2019 Data Analysis Brief is also a very useful contribution<sup>8</sup>.
- 1.4 Our research to improve our own methods of data collection has shown variability in data collection and classification across the sector and beyond. We feel that collaboration towards standardisation and comparability of data collection could improve community understanding, including of the need for this data, improving diversity data survey response rates and validity, and monitoring of outcomes. The diversity and inclusion survey guidance (DAISY) developed by Wellcome and Equality, Diversity and Inclusion in Science and Health (EDIS) provides a model of good practice<sup>9</sup>. The Science Council and the Royal Academy of Engineering have developed a progression framework to help professional bodies assess and monitor their progress on diversity and inclusion<sup>10</sup>.

<sup>&</sup>lt;sup>1</sup> Government UK, (2010). Equality Act 2010.

<sup>&</sup>lt;sup>2</sup> Government UK, (2018). Data Protection Act 2018.

<sup>&</sup>lt;sup>3</sup> The Royal Society of Biology Biosciences For All initiative.

<sup>&</sup>lt;sup>4</sup> The Royal Society of Biology Strategic Plan (2019 – 2021). Biology Changing the World. Page 10.

<sup>&</sup>lt;sup>5</sup> Advance HE, (2013 – 2020). <u>Equality in higher education: Statistical reports</u>

<sup>&</sup>lt;sup>6</sup> The Higher Education Statistics Agency, (2020). <u>Summary of academic and non-academic staff numbers</u>.

<sup>&</sup>lt;sup>7</sup> Office for National Statistics: https://www.ons.gov.uk/

<sup>&</sup>lt;sup>8</sup> APPG on Diversity and Inclusion in STEM. <u>The State of the Sector: Diversity and representation in STEM industries in the UK</u>. Data Analysis Brief Inquiry into the STEM Workforce.

<sup>&</sup>lt;sup>9</sup> Wellcome and EDIS, (2020). <u>Diversity and Inclusion Survey Guidance (DAISY)</u>.

<sup>&</sup>lt;sup>10</sup> The Science Council and the Royal Academy of Engineering, (2016). <u>Diversity and Inclusion Progression Framework</u>.



- 2. Where is there inequity across the different protected characteristics and how are different communities impacted across different:
- STEM disciplines or sector/subsectors
- types of organisation (e.g. private, public, non-profit)
- type of STEM activity (e.g. academic research, education, engagement, commercial, funding)
- job levels and/or qualification.
- 2.1 The Royal Society of Biology, Royal Society, Royal Academy of Engineering and the Academy of Medical Sciences jointly funded Advance HE to redevelop and manage the Athena Survey of Science, Engineering and Technology (ASSET)<sup>11</sup> for 2016. The national survey sought to examine academics' experiences, expectations and perceptions of gender equality in STEM disciplines within a higher education setting. The survey covered a range of aspects of working life. Over 4,800 respondents completed the survey representing a broad range of protected characteristics. An intersectional approach was also taken and the impact of ethnicity, sexual orientation, disability and age, were analysed. We recommend that this inquiry promotes adoption of intersectional approaches. Future policies and initiatives should consider the convergence of multiple diversity characteristics on a person's experiences, and their impact. The Society recommends the report for further examination as it highlights and provides examples of inequity across multiple characteristics impacting numerous aspects of a person's career <sup>12</sup>.
- 2.2 The ASSET report highlighted disparities associated with gender and caring responsibilities<sup>13</sup>. The Society supports the implementation of flexible working policies. Working Families, a work-life balance charity aiming to remove the barriers faced by people with caring responsibilities, have created a campaign to encourage employers to consider the incorporation of flexible working into roles<sup>14</sup>.
- 2.3 The ASSET report also highlighted the more frequently blocked access to training experienced by minority staff members<sup>15</sup>. To ensure fair treatment accessible training, including bystander training, should be provided to enable employees to challenge prejudice and create a more diverse and inclusive workplace. As an organisation, we are eager to ensure that we provide people with the opportunity to educate themselves to positively change mind-sets; we have an online course available<sup>16</sup> on unconscious bias. The development of clear and concise organisational development and competency frameworks can additionally ensure the fair evaluation of performance; alongside an effective complaints procedure to ensure discrimination is reported and challenged; the Society actively works to develop these provisions for our staff. To support the development of diversity and inclusion policies, information is freely available from established, specialised organisations (Stonewall<sup>17</sup>, Business in the Community<sup>18</sup> and the Business Disability Forum<sup>19</sup>).
- 2.4 Facilitating open discussions and collaborating with individuals and allies can provide a basis and sounding board for ongoing work to ensure challenges and opportunities are voiced and needs are met. Additionally, quantitative and qualitative data (personal accounts) have been collated in the Institute of Physics, Royal Astronomical Society and Royal Society of Chemistry's report on 'Exploring the workplace for LGBT+ Physical Scientists'<sup>20</sup>; Dr Nicola Rollock's report<sup>21</sup> on the experiences of Black female professors; and a report on the discrimination in the veterinary profession by the British Veterinary Association<sup>22</sup>, for example.

<sup>&</sup>lt;sup>11</sup> Advance HE, (2016). The Athena Survey of Science, Engineering and Technology (ASSET 2016).

<sup>&</sup>lt;sup>12</sup> Advance HE, (2016). ASSET 2016: infographics relating to survey.

<sup>&</sup>lt;sup>13</sup> Advance HE, (2016). ASSET 2016: infographics relating to survey.

<sup>&</sup>lt;sup>14</sup> Working Families: https://workingfamilies.org.uk/campaigns/happy-to-talk-flexible-working/

<sup>&</sup>lt;sup>15</sup> Advance HE, (2016). ASSET 2016: infographics relating to survey.

<sup>&</sup>lt;sup>16</sup> The Royal Society of Biology Unconscious Bias Training Course: <a href="https://learn.rsb.org.uk/course.php?CourseID=12">https://learn.rsb.org.uk/course.php?CourseID=12</a>

<sup>&</sup>lt;sup>17</sup> Stonewall: <a href="https://www.stonewall.org.uk/">https://www.stonewall.org.uk/</a>

<sup>&</sup>lt;sup>18</sup> Business in the Community: <a href="https://www.bitc.org.uk/">https://www.bitc.org.uk/</a>

<sup>19</sup> Business Disability Forum: https://businessdisabilityforum.org.uk/

<sup>&</sup>lt;sup>20</sup> Institute of Physics, Royal Astronomical Society and Royal Society of Chemistry, (2019). Exploring the workplace for LGBT+ physical scientists.

<sup>&</sup>lt;sup>21</sup> Rollock, N. (2019). <u>Staying Power: The career experiences and strategies of UK Black female professors</u>.

<sup>&</sup>lt;sup>22</sup> British Veterinary Association, (2019). BVA report on discrimination in the veterinary profession.



3. Where are there evidenced inclusive behaviours and policies within different organisations, subsectors, sectors and countries on:

### Recruitment

- 3.1 To grow and diversify our STEM workforce, appropriate diverse role models and champions are needed to further inspire people from different backgrounds to enter a career in STEM. This should include academic, technical and all other STEM career pathways. In 2 science UK is a charity, which empowers students from disadvantaged backgrounds by providing opportunities that give them insights into STEM careers, thus encouraging a more diverse community of students to study STEM subjects<sup>23</sup>. It is well accepted that teaching by subject-specialist teachers (in biology, chemistry, physics, technology, engineering and maths) helps to inspire and promote student uptake of STEM<sup>24</sup>. The RSB and its Member Organisations work together to host an annual Bioscience Careers Day showcasing the wide range of careers open to bioscience students<sup>25</sup>. Scholarships that have been established to address the lack of diversity at undergraduate level may also act by extension to have this affect at postgraduate level, but more focus at this level of study is needed<sup>26</sup>.
- 3.2 There are proven benefits of embedding employability tuition into degree courses to boost the quality of applicants entering the job market<sup>27</sup>. The Society suggests that when developing programmes employers' needs should be investigated via the nurturing of academic and industry collaborations to identify appropriate skill sets. The Industry Skills Certificate<sup>28</sup> and the Technical Skills Certificate<sup>29</sup> are RSB initiatives designed to support the employability of scientists in industry and the career development of technical staff working in higher education, industry or private laboratories.

### Retention

- 3.3 The underrepresentation of women, disabled people, and those from ethnic minorities and low socioeconomic backgrounds is persistent but varies across the STEM workforce, particularly in senior roles across the STEM sector<sup>30</sup>. The Society supports organisations appointing diversity champions across multiple job grades, with the aim to advocate diversity and inclusion throughout the organisation, and enable accountability for improving practice and communicating strategies to the workforce. The Science Council Declaration on Diversity, Equality and Inclusion (the RSB is a signatory)<sup>31</sup> requires the assignment of a board level diversity champion by signatory organisations.
- 3.4 Initiatives to directly promote, encourage and value diversity within the STEM workforce, such as the Athena SWAN Charter<sup>32</sup> and the Race Equality Charter<sup>33</sup>, are essential to ensure that diversity is supported and equal opportunities are provided, including when addressing STEM skills gaps. Existing initiatives must be continually monitored to ensure that they are effective in enabling people from diverse backgrounds to enter and remain in STEM careers. To retain talent, employers should additionally develop incentives to recognise STEM workers partaking in 'team science'<sup>34</sup> and develop alternative variables to measure and evaluate collaborative performance. In addition to the ethical reasoning, greater diversity in teams' skills sets, experiences and backgrounds has been shown to increase innovation and effective real world application of outputs<sup>35</sup>.

<sup>&</sup>lt;sup>23</sup> In2scienceUK: https://in2scienceuk.org/

<sup>&</sup>lt;sup>24</sup> The Royal Society of Biology, (2017). Response from the Royal Society of Biology to the House of Commons Science and Technology Committee on measures taken to close the STEM skills gap. Paragraph 5, page 2.

25 The Royal Society of Biology Bioscience Careers Day: https://www.rsb.org.uk/careers-and-cpd/careers/bioscience-careers-day

<sup>&</sup>lt;sup>26</sup> The Lara & Biodun Olanrewaju Scholarship (Imperial College London): https://www.imperial.ac.uk/news/193769/new-scholarship-accelerateparticipation-black-students/

participation-black-students/

27 Prospects Luminate (Jisc), (2019). <u>Different approaches to teaching employability.</u>

<sup>&</sup>lt;sup>28</sup> The Royal Society of Biology Industry Skills Certificate: https://www.rsb.org.uk/careers-and-cpd/training/industry-skills-certificate

<sup>&</sup>lt;sup>29</sup> The Royal Society of Biology Technical Skills Certificate: <a href="https://www.rsb.org.uk/careers-and-cpd/training/technical-skills-certificate">https://www.rsb.org.uk/careers-and-cpd/training/technical-skills-certificate</a>

<sup>&</sup>lt;sup>30</sup> The Royal Society of Biology, (2017). Response from the Royal Society of Biology to the House of Commons Science and Technology Committee on measures taken to close the STEM skills gap. Paragraph 3, page 2.

<sup>&</sup>lt;sup>31</sup> The Science Council, (2016). <u>Declaration on Diversity, Equality and Inclusion</u>.

<sup>&</sup>lt;sup>32</sup> Advance HE, Athena SWAN Charter: <a href="https://www.advance-he.ac.uk/equality-charters/athena-swan-charter">https://www.advance-he.ac.uk/equality-charters/athena-swan-charter</a>
<sup>33</sup> Advance HE, Race Equality Charter: <a href="https://www.advance-he.ac.uk/equality-charters/race-equality-charter">https://www.advance-he.ac.uk/equality-charters/race-equality-charter</a>

<sup>&</sup>lt;sup>34</sup> Academy of Medical Sciences, (2016). <u>Improving recognition of team science contributions in biomedical research careers.</u>

<sup>&</sup>lt;sup>35</sup> Rock, D., & Grant, H. (2016). Why Diverse Teams Are Smarter. Harvard Business Review.



- 3.5 Investment in training the current workforce can help to reduce skills gaps and inequalities, aiding career progression for all. STEM employers should invest in training and provide opportunities for their technical staff, recognising the importance of professional development by, for example, encouraging employees to work towards professional registration<sup>36</sup>. The RSB, licensed by the Science Council, offers Registered Science Technician (RSciTech) status<sup>37</sup>. The RSB also provides progression to higher awards through Registered Scientist (RSci), Chartered Scientist (CSci), and our own professional register Chartered Biologist (CBiol)<sup>38</sup>. For our membership to achieve registration status, they must demonstrate evidence of meeting the standard for key competencies as well as a commitment to undergo continuing professional development and adherence to the RSB's code of conduct<sup>39</sup>.
- 3.6 Policies that support UK scientists to readily access equipment and knowledge exchange facilities (such as conferences) locally and overseas; and support for positive movements between different sectors, such as academia and business<sup>40,41</sup> are key areas. Many organisations are very successful in providing specific support to underrepresented communities to work in STEM, and their tried and tested initiatives could be scaled up for greater effect<sup>42</sup>. The Daphne Jackson Trust<sup>43</sup> works to provide opportunities to researchers to return to work at a level commensurate with their skills and experience after a career break for family, caring or health reasons. In practice, the majority of those the Trust assists back to research careers are women; this contributes to addressing the gender and diversity gap in STEM<sup>44</sup>. EDIS<sup>45</sup>, the Science Council<sup>46</sup> and the RSB<sup>47</sup> itself also collaborate and provide routes for collation and sharing of best practice to promote diversity, inclusivity and accessibility across our communities<sup>48</sup>.
- 4. Are there policies or activities undertaken by the UK Government, or its agencies, that advance or inhibit equity and inclusive cultures within the STEM workforce?
- Where could policy change or sector action lead to addressing the equity of opportunity within the UK's STEM workforce?
- 4.1 The Government should continue to invest in sector-led organisations that offer guidance on skills and employment issues in the UK, such as the UK Commission for Employment and Skills (now closed). Previous outputs included a review assessing high-level STEM occupations according to the labour market need, to inform the development of work-based skills solutions such as higher apprenticeships<sup>49</sup>.
- 4.2 The Society encourages the use of more inclusive and diverse recruitment practices and would like to highlight the Social Mobility Commission's work. A cross-industry employers' toolkit<sup>50</sup> has been produced to attract members from a diverse talent pool.

<sup>&</sup>lt;sup>36</sup> The Royal Society of Biology, (2017). Response from the Royal Society of Biology to the House of Commons Science and Technology Committee on measures taken to close the STEM skills gap. Paragraph 21, page 5.

The Royal Society of Biology RSciTech professional recognition award: https://www.rsb.org.uk/careers-and-cpd/registers/rscitech

<sup>&</sup>lt;sup>38</sup> The Royal Society of Biology Professional Registers: <a href="https://www.rsb.org.uk/careers-and-cpd/registers">https://www.rsb.org.uk/careers-and-cpd/registers</a>

<sup>&</sup>lt;sup>39</sup> The Royal Society of Biology <u>code of ethical and professional conduct</u>.

<sup>&</sup>lt;sup>40</sup> The Royal Society of Biology, (2018). Response from the Royal Society of Biology to the House of Commons Science and Technology Select Committee's inquiry on Balance and effectiveness of research and innovation spending. Paragraphs 2.1.1-3, pages 4-5.

The Royal Society of Biology, (2019). Response from the RSB to Professor Adrian Smith's call for evidence on future frameworks for international

collaboration on research and innovation. Paragraph 4, page 3.

42 The Royal Society of Biology, (2019). Response from the RSB to Professor Adrian Smith's call for evidence on future frameworks for international collaboration on research and innovation. Paragraph 8, page 5.

43 The Daphne Jackson Trust: https://daphnejackson.org/

<sup>&</sup>lt;sup>44</sup> The Royal Society of Biology, (2018). Response from the Royal Society of Biology to the House of Commons Science and Technology Select Committee's inquiry on Balance and effectiveness of research and innovation spending. Paragraph 2.9.2, page 13.

<sup>&</sup>lt;sup>45</sup> Equality, Diversity and Inclusion in Science and Health (EDIS): <a href="https://edisgroup.org/">https://edisgroup.org/</a>

<sup>&</sup>lt;sup>46</sup> Science Council: <a href="https://sciencecouncil.org/professional-bodies/diversity-equality-and-inclusion/">https://sciencecouncil.org/professional-bodies/diversity-equality-and-inclusion/</a>

<sup>&</sup>lt;sup>47</sup> The Royal Society of Biology Biosciences For All initiative.

<sup>&</sup>lt;sup>48</sup> The Royal Society of Biology, (2020). The Royal Society of Biology submitted a response to the BEIS R&D survey consultation on the UK R&D Roadmap 2020. Paragraphs 4.1-4.2, pages 5-6.

49 UK Commission for Employment and Skills, (2015). Reviewing the requirement for high level STEM Skills report. Page 5.

<sup>&</sup>lt;sup>50</sup> The Social Mobility Commission, (2020). Socio-economic diversity and inclusion: employers' toolkit.



- 4.3 Within our response to the House of Commons Science and Technology Select Committee inquiry on women in academic STEM careers, we detailed examples of key activities the Government should take to ensure retention. Examples included ensuring adequate resourcing, further development and promotion of diversity initiatives, addressing disparities of pay between different protected characteristics and addressing the provisions for those working in STEM careers and with caring responsibilities<sup>51</sup>.
- 4.4 The Government should also act to improve the availability and dissemination of diversity data. This relates to comments in point 1.4 above. The Society supports the publication of detailed ethnicity data for UK Research and Innovation funding applicants and awardees<sup>52</sup>, in addition to the establishment of the Inclusive Data Taskforce by the National Statistician to aid in further inclusivity of UK data 53.
- 4.5 The direction of any diversity and inclusion activity should be made with a focus on the impact to be achieved. The development and sharing of impact measurement expertise such as the diversity and inclusion evaluation framework highlighted by UKRI<sup>54,55</sup> is likely to be a key component in development of effective and proficient diversity and inclusion initiatives and outputs.
- 4.6 The RSB has highlighted in earlier responses to Parliamentary inquiries and Government consultations<sup>56</sup> that for the UK to remain an international beacon of excellence in research, teaching, innovation and training, it is essential that future immigration systems work efficiently and equitably to support the movement of the skilled scientists who are vital to our success in academia, business and the science-driven economic and service sectors<sup>57</sup>.
- 5. What are the impacts of COVID-19 on equity for STEM workers (including job and income security, contract type etc.) in the short- and medium-term? Which communities, groups, organisations or sectors are being most impacted?
- 5.1 During May 2020, the Society circulated a survey investigating the impact of COVID-19 on researchers. Over 500 national and international responses were received from individuals in a range of sectors including academia, industry, Government and non-governmental organisations, in addition to multiple biological disciplines. A striking statistic highlighted 74% of UK respondents had to abandon or suspend experiments or fieldwork due to the pandemic, with concern over limited future job prospects, career progression and financial worries<sup>58</sup>. Our survey also highlighted that women, people with child and dependent caring, and those coping with COVID-19 in their families, reported significant disruption to their work and fears about progression. Similarly, respondents who were shielding due to pre-existing health conditions (such as asthma) anticipated delays in returning to research and teaching, again affecting career progression. The Society has additionally featured examples of the impacts of COVID-19 and wellbeing, in our magazine The Biologist<sup>59</sup> and our COVID-19 Bulletin<sup>60</sup>.
- 5.2 The COVID-19 pandemic has had enormous impacts on universities, charities and other organisations in the research ecosystem - threatening to set back the goal of increasing the UK's scientific output and growth of the STEM workforce. We are especially concerned about the harms to the skills base that would result from the loss of charities, societies and other organisations that provide training and support to specialist research personnel and engagement with standards in many areas, and whose

<sup>&</sup>lt;sup>51</sup> The Royal Society of Biology, (2013). Royal Society of Biology response to the House of Commons Science and Technology Select Committee inquiry on women in academic STEM careers. Paragraphs 35-37, page 6.

<sup>&</sup>lt;sup>52</sup> UK Research and Innovation, (2020). <u>Detailed ethnicity analysis for ethnic minority awardees</u>.

<sup>&</sup>lt;sup>53</sup> UK Statistics Authority, (2020). <u>Inclusive Data Taskforce</u>

 <sup>&</sup>lt;sup>54</sup> UK Research and Innovation, (2020). <u>Equality, diversity and inclusion in research and innovation: UK review.</u> Page 89.
 <sup>55</sup> The Royal Society of Biology, (2020). <u>The Royal Society of Biology submitted a response to the BEIS R&D survey consultation on the UK R&D.</u>

Roadmap. Paragraphs 2.1-2.3, page 4.

56 The Royal Society of Biology Policy Resource Library: https://my.rsb.org.uk/item.php?orgresourceid=1

<sup>&</sup>lt;sup>57</sup> The Royal Society of Biology, (2018). The Royal Society of Biology's response to the Science and Technology Committee of the Commons inquiry on an immigration system that works for science and innovation. Paragraph 1, page 1.

<sup>&</sup>lt;sup>58</sup> Bellingan, L. (2020). Coping with COVID. The Biologist.

<sup>&</sup>lt;sup>59</sup> The Biologist COVID-19 articles: <a href="https://thebiologist.rsb.org.uk/biologist-covid-19">https://thebiologist.rsb.org.uk/biologist-covid-19</a>

<sup>60</sup> The Royal Society of Biology COVID-19 Bulletin: https://www.rsb.org.uk/about-us/covid-19/covid-19-bulletin



existence is imperilled by the present economic disruption<sup>61</sup>. Pressures faced by researchers in this environment have led many to reconsider careers in research<sup>62</sup>. A recent researcher survey from the British Neuroscience Association found over a quarter of respondents are considering leaving research altogether, due to the effects of the COVID-19 pandemic<sup>63</sup>. Researchers have also reported poor mental health from prolonged isolation. However, the crisis of the pandemic has produced flexibility in funding structures, processes and policies, along with the evolution of new collaborative ways of working that will be useful to apply to further areas of research<sup>64</sup>. A useful outcome would be the development of funding models that combine investment in R&D from private and public sources<sup>65</sup>.

- 5.3 Immediate action must also be taken to allocate additional funding to schools to cover increased spending due to the coronavirus response. The disruption to education resulting from COVID-19 must be minimised. Potential long-term effects in primary, secondary and tertiary education, as well as STEM teacher recruitment, training and retention, need to be addressed. Further disruption of face-to-face teaching and learning at all levels, particularly regarding data, practical and laboratory skills<sup>66</sup>, risks longer-term impacts on progression through the biosciences, and subsequent effects on the economy and future generations of the STEM workforce<sup>67</sup>.
- 6. What are the implications and opportunities of new policies and employer action in the next 5-10 years following COVID-19 and Brexit? What will the future impacts be for communities, groups, organisations or sectors?
- 6.1 In the future, competent people may be deterred from pursuing particular careers in academic science. by a career pathway that can entail many years of short-term jobs, relatively low pay, relocation and uncertainty before obtaining a stable job, due to the short term nature of some contracts, and the lack of permanent academic posts compounded by the pandemic. This can be especially difficult for young people or families<sup>68,69</sup>.
- 6.2 The COVID-19 pandemic has further thrown light on the growing wealth of evidence<sup>70</sup> documenting inequalities suffered by underrepresented communities in STEM, and in many cases may have acted to exacerbate this disproportionate effect, for example layering further imbalances in opportunity, access, support and career progression for Black scientists, women, disabled people, and those with caring or childcare responsibilities. Such inequality of opportunity can take many forms and is directly tied to research culture as well as social circumstance. Wellcome<sup>71</sup> and others, including the Nuffield Council on Bioethics<sup>72</sup>, have created a body of work on research culture, the learnings from which Government should take into account when developing the People and Culture Strategy<sup>73</sup>. Presently, even greater effort is needed to bridge the differences in lockdown experience that could marginalise talented researchers just when we need our best foundations. There is a need to ameliorate the disruption experienced. COVID-19 and lockdown impacts will not disappear once institutions reopen, so a return to 'normal' could be a recipe for failure<sup>74</sup>. The Society recognises this as an opportunity to 'build back better' and to learn from experiences in addressing inequalities and creating an inclusive environment

<sup>61</sup> Association of Medical Research Charities, (2020). Charity CEOs warn of irreparable damage to UK research.

<sup>62</sup> Association of Medical Research Charities, (2020). Pandemic threatens future of research as early career scientists look to leave.

<sup>&</sup>lt;sup>63</sup> British Neuroscience Association, (2020). The future of neuroscience research after COVID-19.

The Royal Society of Biology, (2020). RSB Policy Lates looks at the positives and negatives for research in 'the COVID era'.

<sup>65</sup> The Royal Society of Biology, (2020). The Royal Society of Biology submitted a representation to the Comprehensive Spending Review 2020. Paragraph 10, page 5.

<sup>&</sup>lt;sup>66</sup> Coates, D. (2020). How do we get students back to the bench safely? The Biologist.

<sup>&</sup>lt;sup>67</sup> The Royal Society of Biology, (2020). The Royal Society of Biology submitted a representation to the Comprehensive Spending Review 2020. Paragraph 5, page 3.

<sup>68</sup> The Royal Society of Biology, (2020). The Royal Society of Biology submitted a response to the Science and Technology Select Committee (Commons) inquiry into A New UK Research Funding Agency. Paragraph 3.2, page 5.

69 The Royal Society of Biology, (2020). The Royal Society of Biology submitted a response to the BEIS R&D survey consultation on the UK R&D

Roadmap. Paragraphs 4.3-4.4, pages 6-7.

<sup>70</sup> Public Health England, (2020). Beyond the data: Understanding the impact of COVID-19 on BAME groups.

<sup>&</sup>lt;sup>71</sup> Wellcome, (2020). Research: let's reimagine how we work together.

<sup>&</sup>lt;sup>72</sup> The Nuffield Council on Bioethics, (2014). The culture of scientific research in the UK.

<sup>&</sup>lt;sup>73</sup> Government UK, (2020). <u>UK Research and Development Roadmap</u>.

<sup>&</sup>lt;sup>74</sup> Bellingan, L. (2020). Coping with COVID. The Biologist.



to allow the STEM workforce to thrive. One such experience and potential opportunity, relates to the Society's finding that the pandemic and social distancing restrictions, by forcing the need for development of further online service provision, has extended audience participation, and increased the accessibility of our meetings, training courses and events to wider geographic communities in the UK and overseas.



### Appendix: Member Organisations of the Royal Society of Biology

**Full Organisational Members** 

Agriculture and Horticulture Development Board

**Anatomical Society** 

Association for the Study of Animal Behaviour

Association of Applied Biologists

Association of Reproductive and Clinical Scientists

Bat Conservation Trust Biochemical Society

British Association for Lung Research

British Association for Psychopharmacology

British Biophysical Society British Ecological Society British Lichen Society

British Microcirculation and Vascular Biology

Society

British Mycological Society British Neuroscience Association British Pharmacological Society British Phycological Society British Society for Cell Biology

British Society for Developmental Biology

British Society for Gene and Cell Therapy

British Society for Immunology British Society for Matrix Biology British Society for Neuroendocrinology

British Society for Parasitology
British Society of Plant Breeders
British Society for Plant Pathology
British Society for Proteome Research
British Society for Research on Ageing
British Society of Animal Science
British Society of Soil Science

British Society of Toxicological Pathology

British Toxicology Society Daphne Jackson Trust The Field Studies Council

Fisheries Society of the British Isles

Fondazione Guido Bernardini

**GARNet** 

Gatsby Plant Science Education Programme

(incl. Science and Plants for Schools)

**Genetics Society** 

Heads of University Centres of Biomedical Science

Institute of Animal Technology

Laboratory Animal Science Association

Linnean Society of London Microbiology Society

MONOGRAM - Cereal and Grasses Research

Community

Network of Researchers on the Chemical Evolution

of Life

**Nutrition Society** 

Quekett Microscopical Club
Society for Applied Microbiology
Society for Experimental Biology
Society for Reproduction and Fertility
Society for the Study of Human Biology

South London Botanical Institute The Physiological Society

The Rosaceae Network

Tropical Agriculture Association UK Brassica Research Community UK Environmental Mutagen Society

University Bioscience Managers' Association

Zoological Society of London

**Supporting Organisational Members** 

Animal and Plant Health Agency

Association of the British Pharmaceutical Industry

AstraZeneca

**BioIndustry Association** 

Biotechnology and Biological Sciences Research

Council

**British Science Association** 

Covance

**Ethical Medicines Industry Group** 

Fera

Institute of Physics

Ipsen

Medical Research Council

NNedPro Global Centre for Nutrition and Health

Northern Ireland Water Porton Biopharma

Royal Society for Public Health

Severn Trent Water

Syngenta

Understanding Animal Research

Unilever UK Ltd

United Kingdom Science Park Association

Wellcome Wessex Water Wiley Blackwell

Collated published responses from the Royal Society of Biology to previous consultations and inquiries can be found in our online and searchable Policy Resource Library: <a href="https://my.rsb.org.uk/item.php?orgresourceid=1">https://my.rsb.org.uk/item.php?orgresourceid=1</a>