The Big Life Scientist Survey: Key Findings

What is The Big Life Scientist Survey?

We conducted The Big Life Scientist Survey during March and April 2018 to help highlight the biggest challenges life scientists are facing globally, around issues such as funding, pressure, publication, and more.

Why did we carry out the survey?

Over the last few months, we've spoken to a lot of life scientists for our Interviews with Scientists blog series and our inaugural Lab Heroes Awards, and we're hearing the same issues coming up again and again. Whether it's stress and pressure, access to funding, or diversity in the lab, we wanted to shine a light on the main barriers life scientists are facing, help them get heard, and tell it like it really is.

How was the survey conducted?

The survey was conducted by asking our customers, contacts, and social media followers from around the world to indicate the extent to which they strongly agreed, agreed, neither agreed nor disagreed, disagreed, or strongly disagreed with statements about funding, study replication, publications, lifestyle, and diversity. 222 life scientists responded, predominantly from the UK and US, and mainly working in the field of neuroscience.

How are the results presented?

We've presented the key findings from the survey here.

The full survey results can be downloaded from www.hellobio.com

Section 1: Funding

What did we ask?

We asked life scientists to indicate the extent to which they agreed or disagreed with a series of statements about funding, including budget cuts, writing proposals, the likelihood of obtaining funding, and funding providers' agendas. Participants were also invited to share additional comments, which you will find on the next page.

What were the key findings?

80% said budget cuts prevent them from progressing in their life science careers

74% said proposals for funding take too much time away from their research

82% think that research projects are determined by funding provider's agendas

65% believe it is harder to get funding if you are an early career scientist

89% feel that they'll only get funding if they're published in a peer review journal

Only **25%** of life scientists surveyed think it's likely they're going to get funding

Additional comments from respondents

"The pressure to publish in a high quality peer reviewed journal in order to have any job security (when there is already very little as a young scientist) makes it very hard to do quality research. I am able to, but I have no work life balance and spend many hours in lab at night and weekends. Quality of personal life suffers."

> **"Budget cuts affect equipment purchase such that quality results are harder to generate."**

"The pressure to publish impacting on quality of work is particularly evident in smaller groups who are looking for recognition. These poor results then put pressure on those striving for scientific integrity in larger, more established groups, who will then attempt to compete rather than collaborate."

> **"Scientists from developing countries are highly affected by poor funding and they need global attention."**

Section 2: Replication

What did we ask?

We asked life scientists to indicate the extent to which they agreed or disagreed with a series of statements about replication, including pressure to obtain new findings, journals tendency to publish replication studies, and difficulties in replicating studies. Participants were also invited to share additional comments, which you will find on the next page.

What were the key findings?

73% believe that journals tend not to publish replication studies unless the conclusions contradict the previous studies

77% feel that researchers often do not share enough detail on their methods to allow replication

60% said published work is often difficult to reproduce because of poor quality methods

81% said that the pressure to obtain novel findings discourages scientists from trying to replicate the work of others

Additional comments from respondents

"People have the time to do good quality research, it just doesn't get you anywhere. You need to be in the right area, in the right lab, at the right time. There is too much pressure to make high impact discoveries in fashionable areas. This is what is leading to fraudulent claims and contributing to poor research integrity."

> **I had many issues in the past regarding poorly written methods. It is important to give as many details as possible so other scientists can replicate findings if needed.**

“We need a separate funding stream and / or dedicated institutes of professional scientists whose sole job is study replication. It is impossible in the current publish or perish environment to expect academic researchers to spend our scant research dollars and time on replication studies when there is no incentive to do so. It would be career-ending in the current culture of academic research.”

> **The methods aren't necessarily poor. It is the potential lack of standardisation between labs that is the issue.**

Section 3: Publications

What did we ask?

We asked life scientists to indicate the extent to which they agreed or disagreed with a series of statements about publications, including costs, peer review, and representation of science in the media. Participants were also invited to share additional comments, which you will find on the next few pages, split by subject.

What were the key findings?

61% believe peer review often fails to detect fraud and other problems with manuscripts

70% feel that anonymity of institution and researcher at peer review stage would give a study more chance of being published

50% said that paywalls (paying for publications) prevent them from furthering their research

78% think that publications should be free for all

82% said that scientific breakthroughs are often inaccurate or mis-reported in the press

Additional comments from respondents

Peer review

“There is a widespread collaboration between universities, funding bodies (mainly governmental) and journals to keep the publishing power, promotion power and grant receiving power in the hands of the usual suspects.The world of KPIs, impact factors, grants and journals is totally broken. Science is now a corporate business for box tickers, not thinkers that solve important problems. But nothing is going to change until we break journal / university / grant body monopolies.”

> **“The peer review "system" is broken and has been for a long time. Review of funding and of manuscripts is highly political and has been for a long time.”**

"Peer review isn’t designed to catch fraud. It’s to determine accuracy and potential impact (in line with journal expectations). Deliberate malfeasance can’t be easily screened for, that’s why we have post peer review, replication, and retraction."

> **“Anonymity is necessary not only for conflicts of interest, but also because there is much prejudice against any science outside USA-Europe, and its completely unfair.”**

"Peer review relies on the good will of other scientists who see it as their duty, but with other pressures, they might not spend long enough interrogating the study."

Additional comments from respondents

Cost of publications

"It is amoral for scientific journals to hold captive research funded by public tax dollars and performed in public universities. While I am at a large university and have more than adequate resources and access, the same is not true for everyone. without institutional access to journals it would be impossible to even check the sources of a media report."

> **"Publications should be free for researchers not necessarily members of the public."**

"Publications (journals) should be a thing of the past. All research should be available online for free via the host institution. Scientists should be encouraged to make their data available in a 'little and often' way, with constant support and discussion from the community, not as big reveals every 1-3 years."

> **"Publication fees* are a limitation for publishing a study, especially for a PhD student with only the scholarship to support them. I strongly believe that publishing should be free, that would also widen the scientific data available."**

*Additional comment not on paying to access publications, but on the cost of publishing findings.

Additional comments from respondents

Misrepresentation in the media

“Misrepresentation of science is an enormous problem in society, with a large proportion of the public losing faith in scientific methods and opting for internet articles and alternative medicine. Many believe research is run by corporations looking to make profit rather than to further medicine and scientific knowledge.”

> **“Misrepresentation of scientific findings occurs due to media demands for excitement but also due to institutional level pressures: "You need to make this overstatement of your research otherwise it won’t picked up."”**

"Every university wants media coverage, researchers are pushed by the media in institutions, and individual researchers are pressured by funding and promotion procedures that reward this behaviour, i.e. 'Get out and be known.' But to do that media contacts will want to sensationalise your findings.”

Section 4: Lifestyle

What did we ask?

We asked life scientists to indicate the extent to which they agreed or disagreed with a series of statements about stress, available support, and work / life balance. Participants were also invited to share additional comments, which you will find on the next page.

What were the key findings?

73% feel that their ability to do their job is impacted by high levels of stress

91% said that they are passionate about their research

71% feel that being a scientist is rewarding

81% feel that there is pressure on postdocs to publish frequently

91% of all respondents work more than 40 hours a week

40% of US life scientists work over 60 hours a week

Only **25%** feel there is adequate support for early-career scientists

Additional comments from respondents

“The flexibility of the career often means that being a workaholic is part of the process. Holidays are put off until a convenient time, which often doesn't happen. I haven't been on holiday for four years. I cannot consider having a family on 2-3 year contracts. As a postdoc I am the main earner in the household so I can't have a family. I can't afford it and I can't cope with the stress of uncertainty in terms of getting another contract. I only have recently taken out a mortgage - four years ago - I am 42.”

> **“At the moment science is not appealing and there are more rewarding careers, which means early career researchers leave.”**

"Pay is not the determinate of having a social life, but excessive work demands limit a life; grant deadlines over Christmas, and having to work on weekends and at nights just to stay afloat."

> **“Sure there is flexibility but you have to work a lot to be successful, making the flexibility a bit of a red herring.”**

“I am a young woman who started a PhD in life science last year. I am strongly passionate about my research and I think it could be relevant for science in the future, but sometimes I find myself wondering when I will be able to start to have my own family, in terms of money and time.”

Section 5: Diversity

What did we ask?

We asked life scientists to indicate the extent to which they agreed or disagreed with a series of statements about diversity in the workplace. Participants were also invited to share additional comments, which you will find on the next page.

What were the key findings?

65% of all respondents said it wasn't easy to have a family and be a scientist

- **72%** of female life scientists said it wasn't easy
- **55%** of male life scientists said it wasn't easy

53% of all respondents feel that there is a lack of female role models in science

- **63%** of female life scientists felt this was the case
- **39%** of male life scientists felt this was the case

Only **31%** think there is adequate support for female scientists

Additional comments from respondents

“There are huge issues with gender inequality. Particularly young women. The academic culture promotes competition and all too often particularly young women are trodden on and made to feel inadequate. Consider the numbers of early career researchers leaving science and the few women professors."

> **“It isn't just a lack of female role models but a lack of exposure of the work that female scientists are doing right now.”**

“Most of the hiring in science jobs in academia is based on nepotism or lobbies or male brotherhoods. Starting from PhD grad level, its really difficult for females. Look around and you will see a handful of females who could plan for their family while making a career in science. No job should take away the privilege of being happy or having a family from anybody as we all live once.”

> **“There are female role models, but they are not in high positions. You see amazing postdocs and PIs, and always in lesser numbers than men.”**

“Female scientists tend to be trapped at a lower level, as the time they take to have children and work part time effectively kills their promotion capabilities. In management positions it is not acceptable to leave work if a child is sick, or refuse evening teleconferences for family reasons.”