Application summary

Application title This is the title of your proposed project.

Proposed duration of funding (months)
This should be no longer than three years.

Proposed start date	

Name of administering organisation
Please enter the name of the organisation where you intend to hold the award. If your application is successful, this is the organisation that will be responsible for administering the award.

Lead applicant's address at administering organisation If your application is successful, we will use this address in your award letter.	
Department/Division	
Organisation	
Street	
City/Town	
Postcode/Zipcode	
Country	

Research funding area Please select from the drop-down list the funding area that you consider your research falls under
The research funding area selected is used to automatically route your application form to the appropriate Wellcome Trust grants team when it arrives at the Trust. Please note that, when received, we may reallocate your application to another research funding area if we consider it appropriate.

Lead applicant

Lead applicant details	
Full Name	

Department	
Division	
Organisation	
Address Line 1	
City/Town	
Postcode	
Country	
Telephone No.	
Email Address	

ORCID iD	
ORCID iD	

Lead applicants must add their ORCID iD. Find out more about ORCID on the Wellcome Trust's website.

Career history (current/most recent first)				
From	**To**	**Position**	**Organisation**	

Please provide details of your current position (if applicable) and all previous posts held, listing most recent first.

Education/training				
From	**To**	**Qualification**	**Subject**	**Organisation**

Please provide details of relevant education/training, listing the most recent first.

Source(s) of personal salary support

Please state the source of funding of the salary of your post (for example, if it is funded through your organisation's block grant from a higher education funding body). If your salary is being funded from more than one source, please provide details of all funding sources, including their relative contributions. If there are any ties on intellectual property rights or publications arising from the research you undertake, please contact the administrating Funder for advice. Restrictions on intellectual property may affect your ability to apply.

If you are not currently in employment, this question should be answered 'not applicable'.

Current/last appropriate salary details

If you are currently unemployed or in temporary employment, please give details of the last appropriate salary that you held.

Basic salary (per annum)

Currency

Date of last increment	

Career breaks Have you taken any career breaks or periods of part-time work, for example parental, long-term sick leave, carer responsibilities?	

We encourage applications from researchers who have taken career breaks. We want to ensure that any such breaks are taken into account when we consider your track record. State when and for what period you took a break, or were working part-time. We are not asking for the reasons for this break so please do not provide these here, including sharing any sensitive personal health information.

Provide details

Do you wish to undertake this award part time?	

If you wish to undertake this award part time, you must be employed on a part-time basis. Please contact the administrating Funder to discuss your requirements.

Are you moving from your current organisation to take up this Fellowship extension?	

What scientific considerations led you to choose this research environment and sponsor for your research? (400 words max.)

Research outputs
List all research outputs arising during the period of your Sir Henry Dale Fellowship. You may provide a summary of your contribution to, or your role in, the work associated with each (e.g. intellectually conceiving or conducting the research, supervising staff, writing the paper).

Research outputs may include (but are not limited to):

- Peer-reviewed publications and preprints
- Datasets, software and research materials
- Inventions, patents and commercial activity

For original research publications please indicate those arising from the Funders' grants in **bold** (indicating whether Royal Society or Wellcome Trust), and provide the PubMed Central ID (PMCID) reference for each of these. Please refer to guidance notes.

Publications should be in chronological order with the most recent first. Please give citation in full, including title of paper and all authors. Citations to preprints should state "Preprint", the repository name and the articles persistent identifier (e.g DOI).*

*(*All authors, unless more than 10, in which case please use 'et al', ensuring that your position as author remains clear.)*

You should include here systematic reviews (e.g. Cochrane Reviews) and meta analyses, but exclude abstracts and

literature reviews. We encourage the inclusion of articles published via open research publishing platforms, such as Wellcome Open Research, providing they have passed peer review.

Preprints, i.e. complete manuscripts that have been submitted to a preprint repository or service (e.g. bioRxiv, PeerJ Preprints, arXiv, SocArXiv or PsyArXiv), can be included only if they have a permanent identifier such as a DOI or arXiv identifier.

The Funders' open access policy requires all original peer-reviewed research papers, supported in whole or in part by the Funders, to be made available through PubMed Central (PMC) and Europe PMC as soon as possible and in any event within six months of the journal publisher's official date of final publication.

The PubMed Central ID (PMCID) is the unique identifier assigned to every full text paper in PubMed Central (PMC) and Europe PMC.

Please note that:

> *We actively monitor compliance with our open access policy and successful applicants will be asked to provide a full list of all their Wellcome-funded research papers, and confirm compliance by providing the PMCID identifier for these, before the award letter can be issued.*

For further guidance, please refer to the open access policy statement and authors' information.

Total number of peer-reviewed publications which you have authored/co-authored. Please exclude abstracts and literature reviews.	

You should include here systematic reviews and meta analyses. We encourage the inclusion of articles published via open research publishing platforms, such as Wellcome Open Research, providing they have passed peer review.

Current and recent research funding from other funding agencies

Please list all held in the last five years and any key prior grants (list the most recent first). State the name of the awarding body, name(s) of grantholder(s), title of project, amounts awarded, your role in the project, and start and end dates of support. For all active grants, indicate the number of hours per week that are spent on each project.

Success in obtaining funding for your research forms part of the assessment of your track record. In addition to research grants, please include details of any recurrent or core funding support that you have held in the last five years. Please state clearly your role in obtaining the awards, for example, whether you held them in your own right as lead applicant, co-applicant, or as part of a consortium. Please state the value of your own component of the award and the percentage of your time spent on the research.

Progress report

Please describe what you have achieved during your Fellowship.
(700 words max.)

Sponsors

Primary sponsor

The sponsor should be the Head of Department or equivalent (e.g. Director of a Wellcome Trust Centre or MRC Unit). If the Fellow is moving to a new research environment to take up this extension, the sponsor should be able to reassure the Funders that they will be welcomed into the host department as an independent researcher.

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Primary sponsor

Full Name	
Department	
Division	
Organisation	
Address Line 1	
City/Town	
Postcode	
Country	
Telephone No.	
Email Address	

The primary sponsor must be based at the administering organisation.

Title of current post

Source(s) of personal salary support

Please state the source of funding of the salary of your post (for example, if it is funded through your organisation's block grant from a higher education funding body). If your salary is being funded from more than one source, please provide details of all funding sources, including their relative contributions. If there are any ties on intellectual property rights or publications arising from the research you undertake, please contact the administrating Funder for advice. Restrictions on intellectual property may affect your ability to apply to the Funders.

Recommendation
Please upload your letter of recommendation (500 words maximum).

The sponsor should give an assessment of the calibre of the applicant and an overview of how he/she would complement the on-going activities of the host environment. The sponsor should be able to guarantee that the applicant will be supported in developing an independent research career and ensure that the Fellow be granted equal status to other academic staff of similar seniority.

If a suitable vacancy arose in a medical school, university establishment or elsewhere, would you be prepared to support the Fellow as a suitable applicant?	

During the tenure of the Fellowship, would you hope to be able to arrange for the creation of a suitable new post for the Fellow?	

Are further sponsors required for your application?	

If there is more than one sponsor for the proposal, each must provide their details and answer the related questions.

You should normally only identify an additional sponsor if you propose to undertake fieldwork or research in a low- or middle-income country, in which case, you should identify an appropriate Head of Department or equivalent (e.g. Director of Wellcome Trust Major Overseas Programme) in your overseas organisation.

Additional sponsors

1

Sponsor	
Full Name	
Department	
Division	
Organisation	
Address Line 1	
City/Town	
Postcode	
Country	
Telephone No.	
Email Address	

Title of current post

Source(s) of personal salary support
Please state the source of funding of the salary of your post (for example, if it is funded through your organisation's block grant from a Higher Education Funding Council). If your salary is being funded from more than one source, please provide details of all funding sources, including their relative contributions. If there are any ties on intellectual property rights or publications arising from the research you undertake, please contact the administrating Funder for advice. Restrictions on intellectual property may affect your ability to apply to the Funders.

Collaborators

Are any collaborations essential for this proposal? Provide the names and organisations of any collaborators who will make a significant contribution to the proposed research. This could be through sharing facilities, providing access to resources (essential reagents, samples, data) or sharing subject-specific knowledge and guidance.	
If the answer is 'Yes', you will be asked to provide information about these collaborators and to confirm their willingness to take part in the proposed research.	

Please list any key collaborators* (name and organisation) and provide a very brief outline of their role in the proposed research. **The collaborators named may be replaced with suitable alternatives should it be necessary or appropriate to do so.*

I confirm that the collaborators named above have agreed to be involved, as described, in the proposed research and are willing for their details to be included as part of this application.

Related applications

Is this or a similar application for funding currently under consideration elsewhere?	

*If you are offered an award by another funding body whilst the Sir Henry Dale Fellowship Extension application is being considered by the Funders, you are required to inform us immediately of the offer and will normally be required to take a decision on that award within **one month**.*

You are expected to inform us if you decide to submit this or a similar proposal to another funding body whilst the Sir Henry Dale Fellowship Extension application is still under consideration.

Provide the name(s) of the funder(s) and the expected decision date(s)

Research summary

Research summary
Please provide a summary of your proposed research, including key goals, for an expert audience (200 words max.)

Please provide a summary of your research proposal, aimed towards an expert audience. This will be used as a short form 'abstract' and is necessary to enable the Funders to classify your proposal by subject area. This synopsis may be disclosed on the Funders websites and may be used for other publishing purposes. For all our awards, we publish the synopsis as part of the grant details made available externally.

The summary should be as complete as possible within the word limit, and should include key words which best describe the proposal to enable text searching.

Lay summary
Please provide a summary of your proposed research that people who may not be familiar with the subject can understand. We may edit your summary and then use it to describe your research on our websites and elsewhere.

You don't need to oversimplify your research, but try to explain it as clearly as possible. You should write in the first person ("I" and "we") and structure your summary in this order:

- *background to the research problem*
- *your approach*
- *expected impact of your work.*

Example of a lay summary
In response to stress and environmental changes, bacteria generate hundreds of small RNA molecules that have key roles in regulating gene expression. This process of riboregulation involves chaperone proteins that facilitate the actions of regulatory RNAs, and enzymes that affect RNA transcript lifetimes. I aim to understand the molecular basis of riboregulation by taking a multidisciplinary approach. I will use biochemical and structural analyses, including cryoEM and cryoET, to visualise how RNA transcripts are captured and channelled to active sites, either for degradation or processing. I will also identify the RNA targets of chaperone proteins and the degradative machinery, and explore whether the patterns change with physiological state or during the cell cycle, and why. These studies will help to explain how small RNAs enhance the speed and accuracy of bacterial genetic regulation, enriching the capacity of the simplest organisms to exhibit complex behaviour.

Details of research project

Detail (a) Aims and research questions; (b) Work which has led up to the project; (c) Approach and methods to be used; (d) Timetable and milestones, if appropriate; (e) How this extension will enhance your transition to the next career stage.

No more than **1,400** words should be used to describe the proposal.

If you plan to work in more than one department during the Fellowship – for example, spending a period abroad – the description of the project in these pages must make clear which parts of the project are to be carried out in each location.

*No more than **1,400** words should be used to describe the research proposal in total, excluding graphs, figures, etc. You may provide your answer to this question in text entry format or as a PDF attachment. If you are uploading your research proposal, the uploaded document must be in 11 point Arial font and portrait format.*

Graphs, figures and essential quoted but unpublished information, including data, provided in support of the research proposal, may be embedded in the text or attached as supporting material – this must not exceed the equivalent of two A4 pages in length.

You must provide all information pertinent to your grant proposal within the application form (it is not acceptable to refer to additional unpublished information on personal websites).

Research questions
Please state what you consider to be the key question(s) that is/are being addressed by your proposal. For research that is not driven by an underlying hypothesis, please state the impact of the proposed studies.

Approach and methods to be used
Details of experimental design for animal studies should be provided as part of the justification for animals in the 'Costs requested and justification' section of the form.

For epidemiological, demographic, case control, cohort and related studies, give a full and detailed analysis of the study design, including details of any validation already undertaken or rationale for using standard protocols. Particular attention should be given to power calculations, sample size justification and, where appropriate, case definition and inclusion/exclusion criteria.

If you are requesting support for a clinical trial, you must provide full details, including study design, in the 'clinical trial' section of the form.

(1400 words max.)

Does your proposal involve a clinical trial?	

The World Health Organization defines a clinical trial as: "any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes. Interventions include, but are not restricted to, drugs, cells and other biological products, surgical procedures, devices, behavioural treatments, process-of-care changes, preventive care, etc."

For further information, refer to our clinical trials policy statement.

If your proposal involves a clinical trial, you should provide details of it within this application form. You do not need to download and complete the Word version of the clinical trials form from our website.

Clinical trial details

What are the proposed participating centres, and the roles of the clinical trial team members? Provide details of any activity to be undertaken by a third party, and comment on the plans to ensure the presence of a formal contract.
(200 words max.)

Please describe the study design, including planned interventions (experimental and control), duration of treatment, and any potential significant risks to participants. Details of any investigational product should be provided with particular regard to manufacture, quality and consistency.
(300 words max.)

Describe the inclusion/exclusion criteria. What are the proposed methods for protecting against sources of bias? What are the proposed arrangements for allocating participants to trial groups?
(200 words max.)

What are the envisaged primary and secondary outcome measures, and how will these be assessed at follow up? Describe the proposed frequency and duration of follow up and any anticipated problems with non-compliance and/or loss to follow up.
(200 words max.)

Detail and justify the sample size and proposed statistical analysis, including any interim analyses and/or subgroup analyses. Outline and justify the strategy for recruitment.
(200 words max.)

How have patients, patient advocacy groups or communities been involved in developing the clinical aspects of this proposal?
(300 words max.)

Describe anticipated regulatory and governance approvals, and the proposed arrangements for trial management. What is the proposed membership of the Trial Steering Committee and the Data Monitoring and Ethics Committees?
(200 words max.)

You may submit up to two A4 pages of additional information (such as graphs, figures, tables and essential unpublished data).

The additional information (such as graphs, figures, tables and essential unpublished data) provided in support of the research proposal may be embedded in the text of your file upload or attached here as a separate file. If you choose to embed this information, any text present (such as legends, labels or captions) can be excluded from the word count.

Please note that this form asks for all the information we require to consider your application. You should not provide additional information (e.g. letters of support) unless specifically requested in the form.

References
You should give the citation in full, including title of paper and all authors.

You may provide up to the equivalent of two A4 pages of references. Please ensure that all references included are pertinent to your research proposal and are cited in full, including all authors, the full title of each publication, journal title, year, volume and pages. Citations to preprints should state "Preprint", the repository name and the article persistent identifier (e.g DOI).

References with more than 10 authors may be shortened to et al, but please ensure that your position as author (if applicable) remains clear.

Are there any papers listed in your 'References' section as being "in press" that you wish to submit to us?	

Upload papers "in press"

Please submit papers "in press" as a single PDF.

Outputs management and sharing

Will the proposed research generate outputs of data, software, materials or intellectual property that hold significant value as a resource for the wider research community?	

As set out in our Data, Software and Materials Management and Sharing Policy, all Wellcome-funded researchers are expected to manage their research outputs in a way that will achieve the greatest health benefit, maximising the availability of research data, software and materials with as few restrictions as possible. If your proposed research is likely to generate significant outputs - data, software, materials and/or intellectual property - that will hold clear value as a resource for others in academia or industry, you are required to provide an outputs management plan.

Our guidance on developing an outputs management plan sets out the circumstances under which such a plan is required and gives an overview of what you should consider.

Your plan should be clear, concise, proportionate and focus specifically on how outputs will be identified, managed and then used to advance potential health benefits. You should set out and address clearly the following:

1) For significant data, software and materials outputs
(i) What significant outputs will your research generate?
(ii) When do you intend to share these outputs?
(iii) Where will you make these outputs available?
(iv) How will they be discovered and accessed by others?
(v) Are limits on sharing required?
(vi) How will these outputs be preserved?

2) For intellectual property outputs
(i) What IP will your research generate?
(ii) How will you protect this IP?
(iii) How will the IP be used to achieve health benefits?
(iv) Provide the name and contact details for the person in your organisation (e.g. Technology Transfer Officer or Business Development executive) who can act as a point of contact for Wellcome in connection with the protection and commercialisation of this IP.

3) Describe any resources that you will need to deliver your outputs management plan.

Please note that regardless of whether or not a plan is required, you must ensure that data and original software underlying published research findings are accessible at the point of publication.

Select the approach you will use to maximise the impact of your significant research outputs to improve health and benefit the wider research community.

Provide an outputs management plan.
Our guidance on developing an outputs management plan sets out where such a plan is required and gives an overview of what you must consider.
(700 words max.)

Your plan must be clear, concise, proportionate and focus specifically on how you will identify outputs, manage these and then use them to advance potential health benefits. Set out and address clearly the following:

1) For significant data, software and materials outputs
(i) What significant outputs will your research generate?
(ii) When do you intend to share these outputs?
(iii) Where will you make these outputs available?
(iv) How will they be discovered and accessed by others?
(v) Are limits on sharing required?
(vi) How will these outputs be preserved?

2) For intellectual property outputs
(i) What IP will your research generate?
(ii) How will you protect this IP?
(iii) How will the IP be used to achieve health benefits?
(iv) Provide the name and contact details for the person in your organisation (e.g. Technology Transfer Officer or Business Development executive) who can act as a point of contact for Wellcome in connection with the protection and commercialisation of this IP.

3) Describe any resources that you will need to deliver your outputs management plan. Regardless of whether or not a plan is required, you must ensure that data and original software underlying published research findings are accessible at the point of publication.

Public engagement

Do you have plans for engaging with the non-academic public about your work?

The Funders are committed to engaging with society about the research they support. We aim to foster mutual trust and understanding and place science within a societal, historical and cultural context. Further information is available on the Wellcome Trust website and the Royal Society website.

We expect those researchers who receive our funding to help support an environment within which science can flourish by informing, consulting and collaborating with the non-academic public.

Please provide a brief outline of your public engagement plans.
(250 words max.)

Describe your plans to engage the non-academic public about your work beyond press and media activity. Engagement that is essential for the ethical conduct of the research, such as patient information leaflets or community advisory

boards, should be part of your research methodology and included within your main research costs.

Wellcome may provide additional support during the lifetime of the research grant, with a focus on developing the researcher's practice in Public Engagement, Diversity & Inclusion, or Open Research through our Research Enrichment scheme. Further details on the scheme, including how to apply, are available on our website.

Please note that the Funders provide support for researchers in the UK to engage with the non-academic public. Do you wish to receive information about training, funding and other public engagement opportunities?	

Work abroad

Do you propose to work abroad during the course of your fellowship?	

Applicants requesting support for a period of research abroad will need a sponsor both in their host organisation (i.e. the administering organisation) and in the overseas organisation or research facility.

Applicants may normally spend up to 12 months of the Fellowship outside their host organisation during the period of award.

The description of the research proposal under 'Details of research project' should make clear which parts of the project are to be carried out in each research facility.

Work abroad
1

Name of host overseas organisation

Address of host overseas organisation

Dates of travel and duration of trip(s) Please specify weeks, months, etc.

Purpose of the visit(s) (100 words max.)

Please upload a letter of recommendation from your sponsor at the host overseas organisation (300 words maximum).
This should include an assessment of the value of the visit for the development of the applicant's research programme. The Funders ask that the sponsor should carefully consider the relationship of the proposed research to the abilities and career aspirations of the applicant. *The letter of recommendation should show clearly the name, position and address of the sponsor.*

Location of activity

Will the funded activity take place at more than one location? List any locations outside of your administering organisation where you will be conducting research or redirecting funds . This includes, but is not limited to, anywhere in receipt of indirect funding, fieldwork sites, and time spent working in another organisation/laboratory. This does not include conference attendance.	

For each location, select the country and, where applicable, state the organisation (please include the administering organisation). Indicate the approximate percentage of the total funds that will be spent in each location, entering zero for locations where activity will take place but no significant funds will be spent. Salary costs, if requested, should be attributed to the employing organisation.

Country	Organisation	Percentage of funds

Costs requested and justification

Salaries Are you requesting salaries? Please refer to guidance notes and definition of terms for further details	

*Please detail salaries requested for all staff, **including the applicant,** to be funded on the grant.*

The host organisation will determine the appropriate basic salary for the applicant, commensurate with the skills, responsibilities and expertise necessary to carry out the role, and the total costs of the post are to be detailed in the application form.

The total costs requested should include the applicant's basic salary, employer's contributions, incremental progression and any locally-recognised allowances (e.g. London allowance), as applicable. Any previous Wellcome Trust supplement paid to an individual should also be excluded. Figures for Year 1 may include known pay awards that will take place during the first year (or an assumed percentage, equivalent to our current inflation rate, as set out on the scheme webpage, where the scheduled pay award has not yet been confirmed). Inflation for Year 2 onwards will be based on our current inflation allowance rates and should not be factored into the requested salary.

Please note that Fellows are not expected to undertake more than 6 hours of non-research activities per week.

Salaries for any requested research staff should be in line with the host organisation's normal salary scales.

The names of individuals for posts involving the handling of and research on non-human primates should be provided. Once an application has been submitted, the Funders must be notified of any change to the individual(s) named in the application, prior to it being considered.

Definition of terms

***Staff category:** For example: "Postgraduate research assistant", "Postdoctoral research assistant", "Technician", "Fieldworker". Please specify level of seniority of the post where relevant, e.g. "Junior postdoctoral research assistant", "Senior postdoctoral research assistant".*

***Salary grade/scale:** The national or local salary grade/scale on which the individual will be employed.*

***Basic starting salary:** Annual salary to be paid to the individual upon their appointment to the post, exclusive of any allowances for which the individual is eligible. If the post is part time, the annual salary should be quoted on a pro rata basis.*

***Total cost on grant:** Total cost of the post, inclusive of any locally-recognised allowances (e.g. London allowance), employer's contributions and increments, over the period of the grant. Employer's contributions should include any*

statutory obligations (e.g. for the UK, National Insurance contributions) and contributions towards an organisational pension scheme.

Salaries / Stipends

Staff category	Name (if known)	Basic starting salary (p.a.)	Salary grade / scale	Period on project (months)	% time	Total

Materials and consumables Are you requesting materials and consumables?	

Materials and consumables

Description	Total

Animals Are you requesting animals?	

In order to ensure animal experimentation costs are accurate, applicants are advised to complete this section after consultation with their animal house or biological services manager. The organisation is required to apply a consistent costing methodology when presenting cost details to the Funders.

If appropriate, costings can be clarified in more detail in the 'Justification for resources requested' section of the form.

The Funders reserve the right to ask for more detailed costing information from the organisation where a large number of animals and/or substantial costs are involved.

Animals

Animal species	Total no. to be purchased	Total purchase cost	Total maintenance and procedures cost	Total

Associated animals costs

Description	Total

These costs cover specific and relevant training and environmental enrichment, including training for animal husbandry, welfare and associated training for animal technicians, and the cost of animal licences.

Equipment Are you requesting equipment or equipment maintenance?	

The organisation's Director of Procurement/Head of Purchasing (or equivalent) should be aware of all potential capital purchases. The organisation is required to use best procurement practice when purchasing equipment funded with Funders' funds.

Equipment to be purchased
The Funders expect applicants to consider the cost-effectiveness of the proposed purchase of equipment. The estimated price of the equipment should cover all aspects including delivery, installation, maintenance and training, where appropriate. Discounted prices should be quoted wherever possible. A copy of at least one formal quote is required for each piece of equipment with a list price of £100,000 or more. The level of discount that has been negotiated should be clearly stated in the quote.

A contribution from the host organisation, or other source, will normally be expected where the application includes a substantial equipment request. Please refer to the scheme webpage for further details.

If there is a preferred manufacturer for certain items of equipment, you may enter this detail in the 'Type of equipment' field.

It is expected that the equipment requested will be covered by the manufacturer's warranty for the first year after it is purchased. The Funders will fund reasonable maintenance costs for four years after the initial period of warranty on all equipment (irrespective of the length of award made), where this is negotiated as part of the capital purchase cost.

Value Added Tax (VAT)
For grants to be held in the UK, the costs of all equipment to be used for medical and veterinary research should be quoted exclusive of VAT. For equipment that does not fall within this definition, VAT costs should be shown.

Equipment

Type of equipment	No. of items	Cost per item	Cost of maintenance contract	Contribution from other sources	Total

Maintenance for existing equipment

Details of equipment/ facility	Wellcome Trust grant number	Date of purchase	End date of current contract	Total cost of contract	% time on project	Total

Requests for maintenance of existing equipment may be considered if the original grant period has ended. For equipment more than five years old, maintenance costs will be provided only if it is cost-effective to keep maintaining it.

Are you requesting a piece of equipment with a list price of £100,000 or more?	

Please upload a copy of at least one formal quote

If there is more than one quote, please submit these as a single PDF.

Synchrotron radiation sources Will the proposed research require access to a synchrotron source?	

We wish to collect data on access to synchrotron sources for information purposes.

Applicants should apply directly to the synchrotron facility they wish to use. These facilities are normally free at the point of access for researchers who are prepared to publish their results in the public domain.

Which source(s) will you be applying to? (Please select all that apply)

Please specify:

Are you requesting costs from the Funders?	
These facilities are normally free at the point of access for researchers who are prepared to publish their results in the public domain. If this is not the case for the facility that you have selected, please provide details of the costs in the 'Access charges' section. *In instances where the costs of travel and subsistence will not be met by the facility, they may be requested from us. Please provide details of these costs in the 'Travel and subsistence' costs section.*	

Access charges Are you requesting access charges?	
Access charges may be requested for the use of items of equipment or facilities, originally funded by the Funders or other sources, once the initial funding period has ended. The use of the equipment/facilities must be essential to the proposed research. *Please refer to scheme webpage for information on allowable access charges.*	

Access charges

Details of equipment/ facility	Original source of funding	Wellcome Trust grant number, if applicable	Standard access charge per unit	Specify unit	No. of units to be used for this project	Total

Travel and subsistence Are you requesting travel and subsistence?	
Items that should be detailed here can include conference attendance and collaborative visits. Where necessary, please state the host organisation. *Conference attendance* *Costs to attend academic/scientific conferences, including conference registration fees, may be requested for the Lead Applicant and any research staff to be employed on the grant, up to the maximum annual amount specified on the scheme webpage. Please specify the amount being requested per person.* *Collaborative visits* *Where any costs for collaborative visits are requested, please state the host organisation and provide a detailed breakdown of the travel and subsistence costs. The need for the visit, and its duration, must be justified in the application.*	

Travel and subsistence

Description	Total

Miscellaneous costs Are you requesting miscellaneous costs?	
We require a detailed breakdown of the miscellaneous costs requested. Costs that do not fall under any other category should be entered in this section. These may fall under specific subheadings (such as 'Overseas allowances' and 'Provision for Public Engagement'); where they do not, please select 'Other' and type a description of the item.	

Working abroad
If costs are requested for the applicant(s) and/or research staff to be employed on the grant to carry out any of the proposed research abroad, please state the overseas host organisation, and detail the travel costs and other overseas allowances. Allowances should be itemised (e.g. "baggage/freight", "medical insurance"). Further guidance can be found on the scheme webpage.

Personal removal expenses
We will consider providing a contribution towards your personal removal expenses if you will be relocating to take up the award. For further information on the amount that can be requested, please see the scheme webpage. A justification for the expenses must be provided in the application, together with an estimate of the costs.

Miscellaneous other

Type	Description	Total

Justification for resources requested
Please provide a complete justification for all the resources requested, ensuring that you present this information according to the cost headings requested above.
(1000 words max.)

You should present the justification according to the high-level cost headings in this form, e.g. "Salaries"; "Equipment"; "Travel and subsistence". Please do not include here justification for any animals requested, as there is a separate question for that information.

Please give a justification for the type and seniority of each post sought. Where staff requested will be working in different locations, please indicate where they will be working.

Please provide a justification for all animal and animal associated costs. This does not need to include a justification of the animal numbers required, which can instead be included in the 'Proposals involving animals' section.

Where a piece of equipment exceeds £100,000, please provide details of:
- *similar equipment in the applicant's department and adjacent departments, and the reasons why it cannot be used for this particular project;*
- *any other individuals likely to benefit from use of the equipment.*

Please include justification of the need for any collaborative/overseas visits and their duration.

Summary of financial support requested	
	Total
Total	

Full economic costing

Is your organisation calculating the full economic cost of this proposal?	

What is the total full economic cost (£)?	

*Please provide the **total** full economic cost of your research proposal. Costs should be inflated at the recognised percentage rate currently used by the organisation.*

Research involving human participants, human biological material and identifiable data

Does your project involve human participants, human biological material, or identifiable/potentially identifiable data?	

The following notes relating to 'Research involving human participants, human biological material and identifiable data' are intended to provide guidance and advice in completing the form, rather than a comprehensive review of the legal and regulatory environment in which the application is made.

The World Health Organization defines research with human subjects as "any social science, biomedical, behavioural, or epidemiological activity that entails systematic collection or analysis of data with the intent to generate new knowledge, in which human beings i) are exposed to manipulation, intervention, observation, or other interaction with investigators either directly or through alteration of their environment, or ii) become individually identifiable through investigator's collection, preparation, or use of biological material or medical or other records."

The Wellcome Trust policy position on research involving human participants can be found on the Wellcome Trust website (www.wellcome.ac.uk/wellcome-trust-policy-position-research-involving-human-participants).

Ethical approval (usually from the appropriate National Health Service (NHS) research ethics committees) is required for all Wellcome Trust funded research involving human participants, biological samples or personal data. Personal data (as defined in the Data Protection Act 2018) is any information relating to an identified or identifiable living person i.e. a person who can be identified either directly from that information or indirectly by combining it with other available information. Any use of personal data or biological samples, relating to living or dead persons, should conform to MRC guidelines available at: http://www.highlights.rsc.mrc.ac.uk/PIHR/index.html#/?_k=opxohv and https://mrc.ukri.org/publications/browse/human-tissue-and-biological-samples-for-use-in-research.

Approval from other regulatory bodies such as the Human Fertilisation and Embryology Authority (HFEA) or the Gene Therapy Advisory Committee in the UK should also be sought where necessary, e.g. research involving human embryos may require a licence from the HFEA (please refer to www.hfea.gov.uk for more information). If your proposal involves research on gene therapy which requires regulatory approval, approval should be sought from your Local Research Ethics Committee, the University's Genetic Manipulation Committee, the Gene Therapy Advisory Committee and the Medicines and Healthcare products Regulatory Agency (MHRA).

The organisation must ensure that ethical approval is in place at all relevant times during the project. For research carried out at multiple sites, ethics committee approval must cover each site.

Where the research, or part of the research, is to be performed outside the UK, independent ethics review must be obtained. For research involving people living in low and middle income countries, see the Wellcome Trust's website (www.wellcome.ac.uk/funding/managing-grant/guidance-notes-research-involving-people-low-and-middle-income-countries).

Please confirm that you have read the Trust's guidance on the feedback of health-related findings in research and that you are in the process of considering your approach to this.

The Wellcome Trust's guidelines on the feedback of health-related findings in research can be found on the Trust's website.

Please state by whom and when the ethics of the project has been, or will be, reviewed and specify any other regulatory approvals that have been obtained, or will be sought. We reserve the right to see relevant approval documents at any point during the lifetime of the grant, in accordance with our policy position on research involving human participants.

The following notes relating to 'Research involving human participants, human biological material and identifiable data'

are intended to provide guidance and advice in completing the form, rather than a comprehensive review of the legal and regulatory environment in which the application is made.

The World Health Organization defines research with human subjects as "any social science, biomedical, behavioural, or epidemiological activity that entails systematic collection or analysis of data with the intent to generate new knowledge, in which human beings i) are exposed to manipulation, intervention, observation, or other interaction with investigators either directly or through alteration of their environment, or ii) become individually identifiable through investigator's collection, preparation, or use of biological material or medical or other records."

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Is the proposed clinical trial covered by The Medicines for Human Use (Clinical Trials) Regulations in the UK?	

Under the Medicines for Human Use (Clinical Trials) Regulations 2004, applicants must identify a sponsor (which will normally be either a university or NHS Trust) who fully understands the responsibilities and costs associated with assuming this role. Please note that the Wellcome Trust cannot act as sponsor.

Please confirm that the trial will be registered on the International Standard Randomised Controlled Trial Number Register (ISRCTN), ClinicalTrials.gov, or on another register listed on the WHO International Clinical Trials Registry Platform (ICTRP).

In the course of your project, do you propose to use facilities within the National Health Service (NHS) or to involve patients being cared for by the NHS?	

By agreeing to fund work which requires NHS support, the Wellcome Trust is agreeing to abide by the Statement of Partnership on Non-commercial R&D in the NHS in England (and the corresponding statements in Northern Ireland, Scotland, and Wales). Researchers must therefore meet the obligations of the Partnership and may not carry out any research until the NHS has given its consent.

The Research Governance Framework for Health & Social Care, published by the Department of Health in England can be downloaded from the Department of Health website http://www.dh.gov.uk/health/category/research. Please note that the Wellcome Trust cannot act as sponsor.

Is a formal sponsor required for the project, for example under the Medicines	

for Human Use (Clinical Trials) Regulations or the Research Governance Framework for Health and Social Care and equivalent guidance?	

Please indicate which organisation(s) has/have agreed to fulfil this role. Please note that the Wellcome Trust cannot act as sponsor.

If any potentially commercially exploitable results may be based upon tissues or samples derived from human participants, please confirm that there has been appropriate informed consent for such use.
Please answer 'not applicable' if no potentially commercially exploitable results (based on human tissues or samples) will be produced during the course of the proposed research.

Proposals involving animals

Please indicate which of the following apply: *(Proposal involves the use of animals, Proposal involves the use of animal tissue, Neither of the above)*
The following notes relating to 'Proposals involving animals' are intended to provide guidance and advice in completing the form, rather than a comprehensive review of the legal and regulatory environment in which the application is made. *Applicants must refer to the Funders' policy on the use of animals in medical and veterinary research.* *In all animal experiments supported by the Funders, the principles of reduction, replacement and refinement will apply. In all experimental studies, it is the responsibility of the applicants to actively consider:* • *the complete replacement of live animals with tissues derived from either animals or humans;* • *the possibilities of reducing the numbers of animals that need to be used;* • *refining the experimental design in order to obtain the maximum amount of information from the minimum number of animals.* *Refined methods in animal research are those which alleviate or minimise any adverse effects for the animals involved, and/or enhance animal welfare. Refinements may be applied at any stage in the life of an animal. Thus, refinement encompasses all aspects of a procedure, including:* • *the source, transport, husbandry and environment of the animals involved;* • *the experimental design (e.g. the choice of species and the group size employed);* • *the techniques applied;* • *the end points of the procedures; and* • *care of the animals before, during and after a procedure.* *For further information regarding the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), please see www.nc3rs.org.uk* *Monoclonal antibodies* *The use of ascitic animals for monoclonal antibodies (mAb) production in vivo should only be proposed when in vitro attempts at mAb production have failed or the use of animals is considered justified for specific diagnostic or therapeutic products. If in vitro production methods are not considered to be suitable, a full explanation must be given.*

Indicate which of the following species will be used *(Primate, Cat, Dog, Equidae, Pig, Genetically Altered Animals, Other animals)*

All applications involving the use of primates, cats, dogs and equidae animals, or their tissue/data will be further reviewed by the NC3Rs.

All proposed research projects involving genetically altered mice are expected to consider the principles of welfare assessment set out on the NC3Rs website: https://www.nc3rs.org.uk/generation-and-breeding-genetically-altered-mice.

Click 'Add...' to enter details of the animal species and numbers required

Animal species	**Strain (if appropriate)**	**Total number required to carry out proposed work**
-		

Please provide details on any animal species which are to be used in the proposed project. Please provide the total number to be used (this may differ from the number to be purchased, maintained etc.)

Please justify the animal numbers. A justification of the proposed sample size must be given along with details of the planned statistical analyses. Describe experimental design, including any plans to reduce bias such as blinding or randomisation if appropriate. Power calculations must be included in this section if appropriate. (1,000 words max.)

You may provide your answer to this question in text entry format or as a PDF attachment. If you are uploading your answer, the uploaded document must be in 11 point Arial font and portrait format.

For each species, please ensure that adequate experimental detail is provided to justify both the use and number of animals. This should include:

- *definition of unit of analysis (i.e. N referring to animal or sample number);*
- *means of avoidance of bias (e.g. blinding or randomisation);*
- *statistical analysis to be used and explanation of how sample and/or group size was derived;*
- *where repeated measures are used, the number of time points;*
- *an indication of number of replications of each experiment to mitigate spurious non-replicable results.*

Tables and figures may be included in this section to help justify animal numbers. For additional guidance on designing animal experiments please see the NC3Rs Experimental Design Assistant: https://www.nc3rs.org.uk/experimental-design-assistant-eda

(1000 words max.)

Why are the species to be used the most appropriate?
(250 words max.)

It is particularly important to justify the species when an animal is being used as a model for a human physiological or pathological condition.

Does your proposal include procedures to be carried out on animals in the UK which require a Home Office licence? Your organisation must ensure that research involving the use of animals complies at all times with UK laws and regulations.	

If your proposal involves the use of animals, what would be the severity of the procedures?
You can find guidance on assessing the severity of a procedure on the Home Office website.

Please provide details of any moderate, severe or non-recovery procedures (250 words max.)

Does your proposal involve the use of animals or animal tissue outside the UK?	

Animal research conducted outside the UK must, as a minimum standard, be carried out in accordance with the principles of UK law and regulation. Please confirm that proposed animal work outside of the UK will comply with these principles. (1000 words max.)
Law and regulatory standards often vary from country to country. If experiments are to be carried out on animals outside the UK, the experiments proposed must be performed to standards which accord with the principles of UK legislation. Furthermore, the housing and care of animals must similarly accord with the standards and principles of UK legislation. *Please refer to NC3Rs guidance on carrying out work abroad and choosing contractors: https://www.nc3rs.org.uk/news/choosing-contractors-animal-research*

Why is animal use necessary: are there any other possible approaches? (250 words max.)
Please specify if there are any other procedures of less severity that could be used and how the 3Rs have been implemented.

Non-human primates

If you are exclusively using already generated tissue or data in the proposed experiments please answer all relevant questions as thoroughly as possible, in particular the questions relating to housing and procedures. Non-relevant questions can be answered with 'N/A', but please note that we may request additional information if necessary for assessment.

Do the facilities and practices, and the proposed research comply with the principles set out in the 'National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs) Guidelines: Primate accommodation, care and use' ?	

Please explain why not

Will it be necessary to transport the non-human primates (i.e. from breeding facility and within the host organisation environment)?	

Indicate approximate journey times and the measures that will be taken to minimise the potential stress during transport.

Please provide details of the housing for the animals, e.g. enclosure size, environmental enrichment.

Will single housing of the non-human primates be necessary at any time?	

Please provide details in terms of the justification for single housing, its duration, and what additional resources will be provided to the animals to minimise the impact on animal welfare.

Describe the experimental procedures involved and how any pain, suffering, distress and/or lasting harm will be minimised. Have the procedures been recently reviewed by the Named Veterinary Surgeon (NVS), Named Animal Care and Welfare Officer (NACWO) and Animal Welfare and Ethical Review Body (AWERB)?

Will any of the experimental procedures involve food and/or water restriction?	

Justify why this is necessary and outline what alternatives have been considered.

Will any of the experimental procedures involve restraint?	

What alternatives have been considered? Describe the nature of the restraint, its duration and frequency, and what will be done to avoid distress.

What prior experience and training in non-human primate use, care and welfare have the staff named in the application had? What provision is made for continuing professional development in these areas?

Will any of the staff involved require specific training for any of the procedures concerned?	

Please provide details of the training needed and where it will be undertaken.

Cats, Dogs, Equidae and Pigs

If you are exclusively using already generated tissue or data in the proposed experiments please answer all relevant questions as thoroughly as possible, in particular the questions relating to housing and procedures. Non-relevant questions can be answered with 'N/A', but please note that we may request additional information if necessary for assessment.

From where will the animals be sourced?

Will it be necessary to transport the animals?	

Indicate approximate journey times and the measures that will be taken to minimise the potential stress during transport.

Are animals to be imported?	

Where animals are to be imported, what journey times have been agreed with the Home Office? Describe the conditions for the animals at the breeding establishment and how the potential stress during transport will be minimised.

Please provide details of the housing for the animals, e.g. enclosure size, environmental enrichment.
Please see the NC3Rs guidance on animal housing and husbandry for further details: https://www.nc3rs.org.uk/3rs-resources/housing-and-husbandry

Will single housing of the animals be necessary at any time?	

Please provide details in terms of the justification for single housing, its duration, and what additional resources will be provided to the animals to minimise the impact of the single housing.

Describe the experimental procedures involved and how any pain, suffering, distress and/or lasting harm will be minimised. Have the procedures been recently reviewed by the Named Veterinary Surgeon (NVS), Named Animal Care and Welfare Officer (NACWO) and Animal Welfare and Ethical Review Body (AWERB)?

What adverse effects might the animals experience? List the clinical and other signs that will be monitored, the frequency of monitoring and, where relevant, the humane endpoint criteria established for the study. (1000 words max.)

Will any of the experimental procedures involve restraint?	

What alternatives have been considered? Describe the nature of the restraint, its duration and frequency, and what will be done to avoid distress.

What prior experience and training in animal use, care and welfare will be required of the staff named in the application? What provision is made for continuing professional development in these areas?

Will any of the staff involved require specific training for any of the procedures concerned?	

Please provide details of the training needed and where it will be undertaken.

Risks of research misuse

Confirm that you have considered whether your proposed research could generate outcomes that could be misused for harmful purposes.

Wellcome encourages applicants and their host organisations to consider carefully any risks that the potential outcomes (information, products or technologies) of the research could be misused for harmful purposes. These include actions that pose a significant threat to humans, animals, plants or the environment - including terrorist misuse.

Examples of possible research areas that are associated with dual-use risks of this type, include (but are not restricted to) research that aims to:

- *demonstrate how to render a vaccine ineffective*
- *confer resistance to a therapeutically useful antibiotic or antiviral agent*
- *enhance the virulence of a pathogen or renders a non-pathogen virulent*
- *increase the transmissibility or alter the host range of a pathogen*
- *enable the evasion of diagnostic and detection methods*
- *enable the weaponisation of a biological agent or toxin*
- *generate or reconstitute an eradicated or extinct agent or toxin*

Have you identified any tangible risks of this type?	

Briefly describe these risks and explain how you and your organisation will manage them. (250 words max.)

*Where you judge there are **tangible** (real and non-hypothetical) risks that the proposed research **will itself** generate outcomes that could be misused to cause harm, you (and your fellow researchers and host organisations) must take appropriate steps to monitor the research as it proceeds and minimise these risks. Risk mitigation could include establishing a process to review dual use risks on an on-going basis through the project and to gain independent expert advice as appropriate. You must also ensure that all members of your team are aware of these risks in progressing their research, and receive appropriate education and training on these issues.*

The identification of tangible risks in a research project should be clearly balanced against the benefits and value that is to be gained for health, science and society. We recognise that most research could conceivably generate results that might hypothetically be misused at some point in the future, and we are not asking applicants to appraise these kinds of remote and hypothetical risks.

Refer to the joint BBSRC, MRC and Wellcome policy and position statement on managing risks of research misuse, and our guidelines on good research practice.

Freedom to operate/conflicts of interest

Describe any freedom to operate issues or potential conflicts of interest that have been

identified or that might arise and how these will be or have been addressed.

In particular, please consider the following:

- Do any of the individuals involved in the project hold any consultancies or equities in, or directorships of, companies or other organisations that might have an interest in the results of the proposed research?
- Will the proposed research use technology, materials or other inventions that are subject to any patents or other form of intellectual property protection?
- Will any element of the research be subject to agreements with commercial, academic or other organisations, including arrangements with collaborators named in the grant application, that might lead to intellectual property issues or restrictions?

(350 words max.)

Please describe any freedom to operate issues or potential conflicts of interest that may affect your ability to carry out the proposed research and/or to comply with the Funders' grant conditions.

Where the proposed research, in whole or in part, is subject to agreements with commercial, academic or other organisations, e.g. Materials Transfer Agreements, the Funders will expect a written assurance from the administering organisation that the terms of any such agreement do not conflict with the Funders' grant conditions, particularly in relation to the publication of research and the granting of research rights.

Please refer to the website for the policy on the relationship between Funders-funded researchers and commercial entities.

Details of our policy on intellectual property can be found in our Grant Conditions.

Applicants should disclose all relevant information pertinent to their grant proposal, including proprietary information where appropriate, in order to provide the most comprehensive picture of their proposed research.

If no issues have been identified, please enter N/A.

Wellcome Trust supported facilities

Will the project be based in one of the following Wellcome Trust supported facilities:

- the Wellcome Trust Sanger Institute
- a Wellcome Trust Centre
- an Africa and Asia Programme
- the Francis Crick Institute?

We are interested to find out about Trust-funded projects based in these facilities and wish to collect this data for information purposes.

Please specify