

# CSIRO Synthetic Biology Future Science Fellowships: Call for Applications

## Overview

The *CSIRO Synthetic Biology Future Science Fellowships* scheme is funded through the CSIRO Synthetic Biology Future Science Platform (SynBio FSP). The scheme aims to attract outstanding national and international early-to mid-career post-doctoral researchers (equivalent to Academic Levels A and B, or in exceptional circumstances, Level C) to expand Australian research capacity in synthetic biology. A key element of the SynBio FSP is establishment of a collaborative community of practice extending across CSIRO and Australia, and linking into international efforts in the field.

Fellowships will be hosted at a Host Organisation (usually an Australian University, but other Australian research organisations may also be eligible). The Fellowships program is a partnership between the Fellow, CSIRO, and the Host Organisation. Fellows will be employed by the Host Organisation but will maintain a strong linkage to CSIRO through a partnering CSIRO Mentor(s) and various joint activities designed to support development of a synthetic biology community of practice. Fellows will have a Visiting Scientist appointment at CSIRO and may spend a portion of time physically located within a CSIRO research group if appropriate for the Fellowship project.

The Fellowships are co-funding agreements, requiring a 1:1 cash commitment from the Host Organisation (and/or other funding sources) to match the cash commitment from the SynBioFSP. The Fellowships will provide three years of funding (salary and operating expenses) to be administered by the Host Organisation. Operating expenses may be used for experimental costs, equipment, travel, and other expenses directly related to the CSIRO Future Science Fellow's research. A host organisation financial commitment must be provided in order for the proposal to be assessed.

The SynBioFSP is built on a philosophy of responsible development of synthetic biology technology, striving for ethical outcomes and working within the bounds of social acceptance. Project proposals in the social sciences, as well as in lab-based research, are encouraged.

The 2019 round is the third call funded by the SynBioFSP and will support Fellowships to start by 1<sup>st</sup> November 2019. Further calls under this scheme may be made in the future pending funding arrangements and prior success of the CSIRO-Partner Organisation collaboration. Fellowships will be funded for three years.

The scheme opens on 14<sup>th</sup> December 2018. Applications must be submitted through the Host Organisation's Research Office by **5pm Australian Eastern Standard Time Friday 1<sup>st</sup> of March 2019**.

## Diversity and Inclusion

CSIRO has a large and diverse workforce and its people and culture are fundamental to its ability to innovate and deliver solutions that provide profound impact for Australia and globally. We highly encourage women, people of Australian Aboriginal and/or Torres Strait Islander descent, and other minority groups to apply.

The SynBio FSP strongly supports women and other minorities in STEM disciplines. We welcome applications from such individuals and greatly value the diversity they bring to the SynBioFSP. We recognise that women are less likely to apply for engineering-related Fellowships and Fellowships in general, and would therefore like to encourage applications from women. Process are in place to recognise and properly assess output relative to opportunity, and opportunities for flexible working arrangements and career interruptions are embedded in the Fellowship rules.

## 2019 Priority Areas

There 2019 priority Application Domains are Health & Medicine and Maximising Impact. Applications in other Application Domains will also be accepted. We also have a technical priority area: BioFoundry use. Please see details in the Priority Areas section under 'Projects' below.

# Instructions to Applicants

## Background: The SynBio FSP

Synthetic Biology (SynBio) is the design and construction of biological parts, devices, and organisms, usually based on DNA-encoded componentry; and their application for useful purposes.

It is becoming widely recognised that SynBio is the next transformative technology. SynBio is an emerging interdisciplinary field representing the convergence of diverse domains, such as biotechnology, evolutionary biology, molecular biology, systems biology, physics, chemistry, computer engineering and informatics, electrical engineering, and genetic engineering, among others. SynBio involves modelling, writing, and printing DNA code for the design and fabrication of new biological parts, devices, systems, and machines, as well as the re-design of existing, natural biological systems. SynBio has potential applications in areas as diverse as manufacturing, human health, agriculture, mining and environmental remediation. Because of SynBio's transformative nature, Australia must develop a strong SynBio 'Research Ecosystem' or it will lose competitiveness in almost every industry, including traditional areas such as agriculture.

The SynBio FSP provides a platform comprised of a capability core with the skills suitable to continually develop and improve the SynBio tool box. The FSP will work closely with domain specific researchers and technologists to design, fabricate, and construct the novel, fit-for-purpose biological assemblies and machines across CSIRO and with research partners to deliver outcomes and impacts for the nation. The core Science Domains (capability areas) of the FSP are Integrative Biological Modelling, Engineering Novel Biological Components, and Assembling Innovative Biosystems (see Funding Rules for details). In addition, there are five Application Domains where we are focussing our research program: Environment & Biocontrol, Chemicals & Fibres, Foundation Technologies, Health, and Maximizing Impact (see Funding Rules for details). The FSP is supporting a number of activities, including the *CSIRO Synthetic Biology Future Science Fellowships*.

## Projects and Project Structure

Research projects must demonstrate an ability to build Australian capacity in synthetic biology. Interdisciplinary, inter-institutional, and international collaborations are encouraged. Industry involvement is not a requirement, but is welcome if it supports and aligns with the project, and mutually agreeable intellectual property arrangements can be reached. Financial co-sponsorship from collaborative partners will be viewed favourably, but is not a requirement

## Tips for your proposal

- Proposals that focus on a narrowly defined application without providing actual or potential platform technology development (technologies with broad applicability) in synthetic biology will not be scored well
- Conversely, proposals that include development of platform technologies with multiple different applications will be scored well
- Proposals that link with third parties (national/international; outside of the host organisation and CSIRO) to access expertise and capacity are encouraged as long as Project IP will not be encumbered by a third party
- The Fellow should ideally be bringing new capability to the synthetic biology field in Australia. This capability should be competitive on an international scale
- Projects within scope, but that appear to be continuations of long standing projects, will be given greater scrutiny than those that clearly articulate their novelty, and may not be considered distinct enough to be supported. Projects that are associated with, but are demonstrably novel and distinct from current projects, are eligible
- Systems biology is not synthetic biology, although the two technologies are often used together. Projects that are clearly systems biology focussed with no capacity development in synthetic biology will not be funded.
- Mentor letters are an important part of the application package. The Mentor's commitment to the Applicant and the project should be clear in the letter, as well as highlighting the relevant expertise of the Mentor.

## Identifying your Host Organisation and CSIRO Mentors

Applicants must identify a host organisation Mentor(s) and a CSIRO Mentor(s) who will work together to support the Fellow. The SynBio FSP can assist in identifying suitably qualified Mentors where required, both within the University system and within CSIRO. The SynBio FSP encourages applications supported by mid-career Mentors (equivalent to

academic C and D level). Applicants may enquire directly to the SynBio FSP ([SynBioFSP@csiro.au](mailto:SynBioFSP@csiro.au)) with a brief project outline. Applicants should discuss their project with the proposed Mentors; it is expected that the mentors will assist in development of the project with the applicant, but that the ideas and intellectual ownership of the project belong to the Fellow. Mentors from both the Host Organisation and CSIRO are expected to actively participate in the project and bring relevant and useful expertise to the collaboration. The Mentors will also be expected to participate in Project IP discussions via an IP Committee and to read and endorse milestone reports. The SynBio FSP will facilitate a “mentoring best practise” process for all successful candidates and their mentors to ensure projects are well supported from commencement.

## CSIRO Support

The CSIRO Mentor will provide added technical and intellectual expertise to support the project. CSIRO resources and facilities will also be available to the project through this collaboration. Some applicants/host research groups/mentors will already have formal or informal associations with an appropriate CSIRO Mentor. Groups with pre-existing relationships will not be given priority over new collaborations; however, there will be a greater onus on the new collaborative partners to demonstrate that there is a genuine potential for collaboration. Conversely, groups with pre-existing collaborations will have a greater onus to demonstrate that the research project is novel and not a continuation of a currently-funded project. The SynBio FSP will work with the Applicant to identify a suitably-qualified mentor(s) if required. Applicants may enquire directly to the SynBio FSP ([SynBioFSP@csiro.au](mailto:SynBioFSP@csiro.au)) with a brief project outline and the FSP will provide a list of potential candidates for the applicant to contact.

## Process

Applications must be submitted by email (see How to Apply for complete list of documentation); receipt of applications will be acknowledged. Applications are first assessed against the eligibility criteria. Only eligible applications will proceed to merit assessment stage. Eligible applications are then referred to the selection committee (Assessors) for assessment against the Selection Criteria. The Assessors will be gender balanced consistent with the [Government Board Diversity Target](#). Assessors will be required to declare any real or perceived conflicts of interest during the assessment process. Assessors will not assess applications where conflicts of interest are identified. During the proposal assessment phase, reviewers may request further information from the Applicant or from independent technical experts in the science and research sector.

CSIRO is committed to developing and maintaining a culture that respects, values and actively pursues the benefits of a diverse workforce. The selection process will at all stages reflect this aim by considering gender balance and research output relative to opportunity.

Feedback will be provided for all proposals. Unsuccessful applicants have the right of appeal against administrative processes employed in the selection process, but not against assessment outcomes. Final project details for successful applications may be modified according to feedback by agreement between the SynBio FSP Executive and the Applicant.

Contract negotiations for the Cooperation Agreement will be initiated as soon as provisional offers are made. The Cooperation Agreement is subject to reasonable negotiation between the Host Organisation and CSIRO. The terms of the contracts must be agreed by the contract deadline below, or the Fellowship offer will be withdrawn.

## Important Dates

Applications open: 14<sup>th</sup> December 2018  
Applications close: 1<sup>st</sup> March 2019 – 5pm Australian Eastern Standard Time

*The following are indicative dates, subject to change depending on the duration of the assessment process:*

Notification of outcomes: 29<sup>th</sup> March 2019  
Contract execution census date: 24<sup>th</sup> May 2019  
Fellowships start: by 1<sup>st</sup> Nov 2019

# Funding Rules

Before making an enquiry please check the [Frequently Asked Questions](#), which will be added to and updated regularly while the Proposal Call is open. Enquiries about eligibility and other Funding Rules should be made **via your Host Organisation's Research Office contact person** by email to [SynBioFSP@csiro.au](mailto:SynBioFSP@csiro.au).

## Eligibility Criteria

### Applicants

- Applicants must hold a PhD conferred between 1<sup>st</sup> July 2011 and 1<sup>st</sup> July 2019, i.e. no more than 8 years' post-PhD research experience on the closing date for the applications
  - Applicants still enrolled in their PhD program can apply, as long as there is reasonable reason to believe that their PhD will be conferred by 1st July 2019.
  - Allowances will be made for career interruptions.
  - Space is provided to note career interruptions on the CV Template provided
  - Eligible career interruptions are defined as: carer's responsibility; disruption due to international relocation for post-doctoral studies or other research employment not exceeding three months per international relocation; illness; maternity or parental leave; unemployment and/or non-research employment not concurrent with research employment
  - Periods of career interruption must occur between the PhD award date and the closing time for submission of applications.
- For University-hosted applicants: The scheme is open to researchers at Academic Levels A and B. In exceptional circumstances funding for a level C position may be approved for a truly outstanding candidate. Applicants must apply at the same or higher academic level to that which they are currently employed (i.e. applicants cannot apply at a lower academic level).
- The program is not intended to subsidise currently-employed positions. Applicants who hold a tenure-track/continuing/tenured/permanent/faculty/indefinite position are not eligible to apply.
- Applicants currently holding Fellowships must relinquish the current Fellowship before taking up a CSIRO Synthetic Biology FSP Fellowship.
- It is a requirement that no Project IP will be encumbered by restrictions or claims of ownership/licence rights/other by a Partner, Co-Sponsor or other Third Party. Funding from other sources which is subject to such encumbrances therefore cannot be used to provide matching funding to support the application.
- Applicants may be Australian or international; international applicants will be responsible for ensuring that they are eligible to apply for a visa to work in Australia.
- For the duration of the appointment, Fellows are expected to reside in Australia and be employed by an Australian Host Organisation.
- It is a requirement that applicants address project ethical and social licence to operate aspects adequately in the application form.

### Host Organisation

The Host Organisation nominates the applicant. The Host Organisation will physically host the Fellow for some or all of the Project and will be financially responsible for the Fellow and the Project. The Host Organisation will usually be an Australian University; however other Australian research agencies will be considered on a case-by-case basis. Host Organisations must be located in Australia.

The Host Organisation is required to provide cash funds that match or exceed the CSIRO funding. Funding may also be sourced from industry or other partners to support the 1:1 matched funding requirement however there must be no encumbrances on the Intellectual Property developed under the project. Encumbered funding therefore cannot be used to provide matching funding to support the application. A Certification and Financial Commitment must be completed by the Host Organisation as part of the application form; non-Host Organisation funds commitments must be underwritten by the

Host Organisation. Applications that do not provide a financial commitment from the Host Organisation will not be assessed. Proposals must be submitted through the Research Office (or similar) of the Host Organisation.

The Host Organisation will negotiate a financial and intellectual property agreement (**Cooperation Agreement**) with CSIRO, and will be responsible for managing the finances of the project and for ensuring that the project is executed according to the project plan. A milestone plan must be attached to the Proposal application and will be appended to the Cooperation Agreement. The Host Organisation will be responsible for supporting successful Fellows through any necessary relocation processes (including visa applications etc.).

A contract including Cooperation Agreement and milestone plan must be in place prior to starting the project and transfer of funding. In certain cases, contracts may be negotiated in parallel with assessment of the proposals to ensure their timely conclusion and allow initiation of the project as soon as feasible after the award is made. This is purely administrative and does not imply that the proposal in question will be successful. Please contact [Synbiofsp@csiro.au](mailto:Synbiofsp@csiro.au) for a draft Cooperation Agreement.

## Projects

For the purposes of this Call, synthetic biology is defined as *the design and construction of biological parts, devices, and organisms, usually based on DNA-encoded componentry; and their application for useful purposes*. Projects must aim to deliver an outcome through the engineering of biological systems, typically through the engineering of genetic componentry, commonly in a high throughput manner. This may include biobrick-like components (not necessarily using the BioBrick standard design rules) and/or development of technologies underpinning synthetic biology tool construction or application, and/or social science projects examining social/ethical/legal/regulatory etc. aspects of synbio. Proposals that do not have identifiable synthetic biology components will be disqualified as being out of scope. The only exceptions are projects falling under the Maximising Impact Application Domain (see Domain details below); these projects must still demonstrate a broad capability development applicable in the synthetic biology domain.

Proposals must align with one or more of the five Application Domains and must involve capacity development in one or more of the four Science Domains (see details below). In addition, proposals that use established synthetic biology techniques but do not demonstrate development of new capacity in the synthetic biology field will not be funded.

## 2019 Program Priority Areas

### Application Domain Priorities

The priority areas for the 2019 Fellowship round are the **Health & Medicine** and **Maximising Impact** Application Domains (see below for details). However, we will consider Proposals across all five Application Domains.

### Technical Priority: BioFoundry Use

Biofoundries provide high-throughput combinatorial assembly and analysis of DNA components and engineered cell strains as an integrated facility with Design-Build-Test-Learn components. Design is performed using a variety of computational approaches and software tools, and DNA-encoded components that are contained in virtual and physical libraries of DNA parts. For the Build-Test arms, the BioFoundry comprise three major equipment elements: (1) DNA/RNA/protein manipulation using state of the art liquid handling robotics (2) Semi-automatic identification and selection of clone colonies, and (3) High-throughput growth and analysis of strains/lines.

The SynBioFSP is supporting biofoundry development at The University of Queensland (Australian Foundry for Advanced Biomanufacturing) and Macquarie University (Australian Genome Foundry). These facilities are intended to become nationally available to the R&D community. Effectively utilising such facilities required a conceptual shift from standard bench molecular biology approaches to high-throughput roboticised alternatives. We are therefore strongly encouraging applications that include a BioFoundry component. Access may include residential periods to be trained on equipment use and/or a service-based model. Testing can be performed either using local Foundry facilities or at the user's home lab. Enquiries about project suitability and costings can be made by email to [SynBioFoundry@csiro.au](mailto:SynBioFoundry@csiro.au).

The FSP program is a space for development of basic science and foundational technical capability, and does not necessarily require commercial/industrial outcomes. However, it will be considered a positive where a path to market is articulated in parallel with a project scope that fulfils the requirement of SynBio capacity building. As noted, an industry partner may or may not be identified as part of the proposal. Notwithstanding this, applications marked commercial-in-confidence cannot be assessed and will be excluded.

Strict word limits and page limits apply. **Proposals that exceed word or page limits will not be assessed.** Arial 10 point font is used where text is entered in the form; **do not change the font style, font size, or external box margins.** Applicants are responsible for ensuring that word limits and page limits are not exceeded.

## Responsible Research

As with other interventionist/disruptive technologies, social and ethical considerations are critical in the development of synthetic biology applications, to ensure that the technology being developed serves community needs. The SynBio FSP is built on a philosophy of responsible development, striving for ethical outcomes and working within the bounds of social and cultural appropriateness and acceptance. We therefore ask the proponents to identify any ethical issues that could affect the delivery of the project outcomes or arise as an unintended consequence of the work done. Ethical considerations include, but are not limited to: dual use issues, effects of environmental release of gene drives, impacts on social equity and sociocultural considerations, etc. In this section the proponents should consider the broader implications of their work, in line with the Maximising Impact Science Domain.

A multidimensional understanding of public values, governance and policy is essential for maximising the impacts of the work that originates in the FSP, and projects need to demonstrate that their outcomes have the potential to be socially appropriate. This may not be possible at the inception of a project; however, a plan for early community engagement will be critical for some projects, although the extent and nature of such engagement is clearly outcome dependent. Please include details of how socio-environmental needs will be considered during the project.

Projects will not be scored on ethical or social considerations, but failure to adequately address these issues will disqualify projects from FSP funding.

## Application Domains

**Our research program is focussed around five Application Domains:**

### Foundation Technologies

For SynBio to progress and deliver on its promise, a dependable set of tools and building blocks is required. Projects in the Foundational Technologies Application Domain are developing these components across a range of organisms and systems. One of several focus areas is plastids (mitochondria and chloroplasts) and endosymbionts, which offer some extremely attractive features as delivery vehicles for novel 'code' to repurpose eukaryotic cells. This program of work will focus on developing the tools and technologies necessary to engineer novel systems and deploy highly desirable traits.

### Environment & Biocontrol

SynBio has the potential to revolutionise our capacity to control our environment by modifying the resilience of species under threat, altering the capacity of insects to vector human disease or controlling populations of invasive species. Australia's unique geographical and regulatory environments, combined with CSIRO's world class capabilities in the environmental and biocontrol sciences, give CSIRO considerable competitive advantage in this area.

Projects in this program of work will contribute to a world class capability in delivering environmental and biocontrol solutions based on SynBio technologies.

### Chemicals & Fibres

SynBio will have a significant role in providing substantial and disruptive technologies to our traditional industries, including chemical and fibre manufacture. In future, manufacture of many chemicals will be achieved via biological routes, this will include new chemicals that are currently unobtainable or impractical *via* traditional chemical syntheses. Many traditional fibre production systems and chemical manufacturing processes will be supplanted by more efficient and intensified biological systems and processes through SynBio, and new or highly modified versions of extant fibres and chemicals will become accessible through the advanced bioengineering capability of SynBio. To compete Australia must become leading in these areas as they relate to Australia's traditional economic strengths.

Projects in this program of work will contribute to a world class SynBio capability in delivering production and manufacturing innovations in the fibres and chemicals space.

### Health & Medicine

The emerging tools of SynBio have the potential to advance medical breakthroughs and deliver new health innovations. SynBio may help solve some of the most difficult global health challenges with alternative approaches to vaccine and drug



creation, diagnostics, and combinations of interventions within a single biological system. Projects in this program of work aim to design new synthetic biology tools and platforms that could further global health research.

### Maximising Impact

Synthetic biology applications are potentially disruptive and include genetic alteration of living cells. In order to deliver impact from these technologies, an understanding of socio-environmental needs and impacts is critical to the successful development and deployment of appropriate, acceptable and socially responsible SynBio solutions. Research aligned with the Maximising Impact Application Domain includes projects examining multidimensional understanding of public values, acceptance and decision-making (individual and societal); community engagement; environmental risk assessment; general technology risk assessment; ethical considerations; governance and regulatory issues; policy and legal framework/considerations; and the science of SynBio science communication.

### Experimental Science Domains

Three broad science domains have been identified as critical for the FSP, and capability that supports these areas are in scope for FSP supported projects. Note that projects aligned with the Maximising Impact Application Domain are not required to align with the three science domains listed below.

### Integrative Biological Modelling

Predictive modelling of biological systems is essential for the successful development of SynBio products and for the deployment of many SynBio solutions. Such modelling could include:

- Molecular modelling of biomolecules including genetic circuits, proteins and genome architecture (particularly in response to the introduction of new genetic elements)
- Modelling at an organismal level, including predictive metabolic and phenotypic modelling
- Population modelling: for example, modelling the proliferation of gene drives through a population
- Ecosystem modelling to understand the risks and outcomes of introducing SynBio interventions in the environment
- Integration of modelling at different levels of organisation.

### Engineering Novel Biological Components

Biology has provided a vast array of functional components that can be integrated in to new SynBio circuits, devices etc. However, novel functionality may be required for some applications; for example, tuneable genetic logic gates, novel organic synthetic chemistry steps, or tissue/life-stage specific genetic switches. Such novel biological components could include:

- New genetic switches, circuits and logic gates that control spatial, temporal, tissue-specific and other conditional gene expression
- Novel functional proteins, including sensors, enzymes and structural proteins
- Non-model chassis organisms, including bacteria, fungi, yeast, plants, and animals as well as eukaryotic organelles and endosymbionts.

Capabilities that support the engineering/evolving/discovery of new biological components are in scope for SynBio FSP projects.

### Assembling Novel Biosystems

Novel Biosystems are engineered biological systems, including living organisms, ecosystems and complex *in vitro* systems and devices. Capability that contributes to this area includes:

- Gene delivery and genome editing, particularly in non-model organisms
- Physiological, genomic and genetic understanding of target organisms
- Genetic, genomic, transcriptomic, metabolomics and phenomic tools and systems approaches for assessing outcomes of engineering (and feedback to modelling approaches).

Priority biosystems may be targeted; where a clear and pressing need can be articulated, but where clearly identified technology gaps are present.

## Selection Criteria

Note that alignment of projects is an eligibility requirement; proposals that do not align with one or more of the Application Domains and/or Science Domains will not be assessed. Projects must also align with the definition of SynBio. For the purposes of this Call, SynBio is defined as '*the design and construction of biological parts, devices, and organisms, usually based on DNA-encoded componentry; and their application for useful purposes.*' As noted in the Eligibility Criteria, projects under the Maximizing Impact Application Domain may not have engineering components directly, but they must still demonstrate a broad capability development applicable in the synthetic biology domain.

### **1. Excellence and Track Record of the Applicant (40 %)**

The excellence and track record of the applying Fellow will be assessed with consideration for output relative to opportunity. Publications, bibliometrics, benchmarking, awards, etc. will be used to assess the applicant. The applicant's CV will be used to assess this selection criterion; the CV Template must be used to prepare the CV.

### **2. Ground-breaking, excellent science (30 %):**

One of the major purposes of the FSP is to generate new programs of work in Synthetic Biology. Expressions of interest will be selected on the scientific merits of the proposals. This includes the excellence and novelty of the work. If there are indications that the work proposed is simply a continuation of existing projects, then the proposal is not suitable. Intellectual ownership of the project must clearly reside with the Applicant.

### **3. Capability Building (20 %):**

Expressions of interest will be scored on the capability that they contribute to the FSP. The capability requirements of the FSP are those that enable the four Science Domains (described above). Growing an Australian community of practice in SynBio is a key outcome for the FSP, and as such capability can be drawn from CSIRO, universities and other research agencies. Leveraging FSP investment through co-investment is a favourable outcome, as it allows improved capability building potential for the FSP. Scoring in this section will include how closely proposals align with the Application Domains and Science Domains of the FSP (described above).

### **4. Feasibility (10 %)**

Is the project technically and practically feasible? Does the applicant's track record support the project? Is appropriate mentorship available, and does the Mentor/Mentoring Team's track record support the project? What will be the role of each person? Does the Research Environment support the project? High risk, ambitious and/or 'blue-sky' projects are encouraged, but must be considered feasible with the resources available to the investigator.

## General Considerations

### **CSIRO Support for University-Hosted Fellows**

University-hosted Fellows will hold a Visiting Scientist appointment with CSIRO. It is envisioned that different projects will have different levels of engagement with CSIRO depending on the nature of the collaboration. The linkage with CSIRO is intended to ensure that the Fellow is actively engaged with the developing community of practice in synthetic biology within CSIRO and across Australia, and to provide further support for the Fellow during the execution of their project. To this end, a minimum standard will be required to demonstrate collaborations are genuine. Support from CSIRO will be provided through the partnering CSIRO Mentor. The Future Science Platform will also provide professional training and career development support for the Fellow.

A CSIRO Mentor is required; however, it is recognised that suitable expertise may not be available within CSIRO to support the proposed project. Applicants without field-specific nominated CSIRO Mentors will engage directly with the SynBio FSP Director or a member of the SynBio FSP Executive (all of who are senior scientists) with the closest relevant expertise. This contact person will provide a linkage with CSIRO to assist in access to CSIRO facilities and project support (where appropriate), career development of the Fellow, and engagement with the Australian synthetic biology community of practice.



## Partner/Co-Sponsor Organisation Support

Projects may include a partner or co-sponsor that provides additional expertise and/or funding for the Fellowship project. A letter of support is required outlining the nature of the support. Partner/Co-Sponsor support is not compulsory, but will be viewed favourably where it aligns with and contributes to the project. It is a requirement however that there are no Intellectual Property encumbrances on the IP arising from the project from the Partner/Co-Sponsor.

## Project Costing and Expenditure of Funds

Funding can be used to support the Fellow's salary and on-costs only for salary. Institutional overheads will not be supported. In addition, reasonable operating costs can be requested (a full justification of operating costs will be required at full proposal stage). Funding can be used for travel (including travel to present at conferences, relocation allowances for interstate and international applications and visa costs for internationals), experimental costs (maintenance etc.), equipment, and other expenses directly related to the Future Fellow's research. Conference travel will only be supported where the Fellow is delivering a presentation (oral/poster).

Projects that have a large operating budget will be scrutinised carefully, particularly at the full proposal stage where details of planned expenses will be required. Only eligible expenditure incurred on or after the start date and prior to the end date of the Fellowship can be claimed. All funds must be expended on the Fellowship project; non-Fellowship expenses will not be supported. Administrative support staff costs will not be supported. It is expected that reasonable effort will be made to ensure value for money; unusually expensive projects will be scrutinised carefully and may not be supported at full costing if the financial or technical justification is not considered sufficient. It is unlikely that the SynBio FSP will support extremely expensive Fellowship projects even where justification is appropriate unless the project value to Australian SynBio is extraordinary.

**Budgets should be prepared using the provided Budget Pro Forma and inserted into the Application Form in the Budget section. The CSIRO cash commitment must be met 1:1; funds may be provided by the Host Organisation and/or other partners/funding sources, as long as access to/provision of those funds aligns with the Fellowship Cooperation Agreement.**

Allocations for conference travel, publication fees, and relocation expenses have been standardised for ease of administration as follows:

### Conference travel

In addition to the Fellowship-supported conference allocation (see below), it is expected that Fellows will apply to other funding agencies to support any other desired conference travel, and that Fellowship holders would be highly competitive for such grants. The SynBioFSP will make leverage funds available to support such applications and help make them more competitive. To be eligible to apply for this additional conference funding, applicants will need to demonstrate that they have a significant result to present at any conference they would like to attend.

#### *SynBioFSP Workshop/Domestic Conference Travel:*

Applications should include a budget line of up to \$1500 per annum (depending on justified costs) for attendance at the annual SynBioFSP workshop, a 2-3 day workshop held in September - November each year. Fellows who have not yet taken up their Fellowship by this time in 2019 may still attend if they can; if it will not be possible to attend, please remove the budget line for 2019.

The 2019 SynBioFSP workshop will be held in Brisbane in 2019 in conjunction with the Synthetic Biology Australasia (SBA) conference (back-to-back). Attendance at the SBA conference is encouraged and can be included in this budget item (describing costings in budget justification).

#### *International conference travel:*

Fellows may include a budget line for attendance at one international conference. This will typically be in the second or third year of the program. If you have already identified a need for international travel in your application, please align international conference travel with this travel where possible to decrease expenses (budget line of \$5500 for conference-only travel; rolled into other international travel where possible).

### Publication Fees

You may include a budget line of up to \$2000 per annum to support publication fees (if appropriate for your publishing discipline), but this should be justified in the Budget Justification section with respect to the timing of expected project

publication outcomes. An additional fund will be made available through the SynBioFSP to support publication fees for any additional publications arising from the Fellowship project.

### Relocation Support

A budget line to support international or national relocation expenses (if appropriate) may be included in the budget. These requests must be consistent with the Host University policy and must be detailed in the justification section.

### Membership of Synthetic Biology Australasia

A budget line to cover membership of Synthetic Biology Australasia ([www.synbioaustralasia.org](http://www.synbioaustralasia.org)) should be included. Membership will assist in engagement with the Australian Community of Practice in synthetic biology. It is expected that Fellows maintain their Synthetic Biology Australasia membership.

### Budget Justification

A reasonably detailed budget justification is required for all budget lines. Failure to adequately justify budget lines may result in budgets being reduced in line with the expectations of the assessment panel.

### Salary Level

The requested salary level (Academic A or B, or, in very exceptional circumstances, Level C) should be commensurate with the experience and track record of the applicant. Track record (Selection Criterion 1) for applicants will be assessed in a pool of applicants requesting the equivalent salary level; consequently, applicants requesting higher salary support will be assessed with a higher level of accountability.

### Post-Award Conditions

- Fellowships may begin as soon as a Cooperation Agreement is in place between the Host Organisation and CSIRO. Fellowships must commence by 1<sup>st</sup> November 2019. Some flexibility is possible but applications to extend the commencement date must be made by Monday 20<sup>th</sup> March 2019 and will be addressed on a case-by-case basis.
- Successful applicants may not hold another Fellowship or other position concurrently; if the applicant already holds a different fellowship, it must be relinquished before the CSIRO Synthetic Biology Future Science Fellowship is taken up.
- The Fellowships are not bankable or transferrable, that is, recipients must relinquish these Fellowships if they secure another position or Fellowship
- A minimum of 80 % of the Applicant's time must be devoted to the Fellowship project. At their own discretion, Fellows may spend up to 20 % of their time on non-Fellowship activities that are important for their career development (e.g., teaching, service, outreach, other non-Fellowship research activities)
- Teaching of synthetic biology coursework at the undergraduate level is strongly encouraged, and may be included as a fellowship activity and/or as non-fellowship activity under the 80/20 split above, at the discretion of the Fellow
- Fellowships are not transferrable between people
- Fellowships are transferrable between Mentors and Host Organisations, as long as it can be demonstrated that the new Mentor and/or Host Organisation can support the Fellowship project adequately and that the project milestones can be met
- Fellowships must be undertaken in Australia
- Fellowships are normally expected to be completed continuously over three years. Interruptions are allowed and will be negotiated and approved on a case-by-case basis.
  - Eligible interruptions include parental leave, carer's responsibility, and illness
  - Where interruptions are approved, the Fellow must demonstrate that the project milestones can still be completed in a reasonable timeframe, taking into account the interruption
  - Where interruptions are approved milestone delivery dates will be renegotiated
- Fellowships may be held on a part-time basis if the recipient is fulfilling family and/or carer responsibilities, or in the case of illness interfering with full time work

- Including interruptions and any periods of part-time employment, fellowships must be completed within 6 years of the start date
- The Fellowship may also be converted to (or from) part-time at any time to enable the Fellowship recipient to fulfil family and/or carer responsibilities
- Where necessary and with approval from the Host Organisation and CSIRO (if not otherwise approved as part of the original application), Fellows may spend periods of time conducting research activities interstate or overseas (e.g., for fieldwork, international collaboration, or industry placement). Such travel should contribute to the Fellowship objectives, and will be funded independently from the Fellowship (i.e. no further funding will be available for post-award requests)
- The Fellow will be required to attend SynBio FSP activities including retreats and research symposia/workshops/conferences
- The Fellow will be expected to contribute to establishment and development of a SynBio community of practice, including membership of Synthetic Biology Australasia (SBA)
- The Fellow is expected to engage in outreach and promotional activities from time to time as part of the SynBio FSP
- There should be regular contact between the University and CSIRO Mentors to assist in support of the Fellow
- The Fellow is required to notify CSIRO of any changes or conditions that are likely to impact on eligibility, progress, project funding, financial expenditure, or reporting.

## Intellectual Property and Publication Considerations

Successful Fellowships will commence on execution of the Cooperation Agreement between the Host Organisation and CSIRO. Project IP will be managed by an IP Management Committee which will be composed of two representatives from each party. The Standard IP principles are as follows:

- The Project IP is owned by the Host Organisation, with CSIRO being granted royalty-free, non-exclusive right to undertake non-commercial research.
- CSIRO is also granted a 12-month option to negotiate an exclusive commercial licence. A separate Commercialisation Agreement will be negotiated at this time and will provide an equitable sharing by the parties of any financial return. The Agreement requires a non-exclusive right to use the Host Organisation background IP to the extent necessary to commercialise any Project IP.

Publications must be approved through both parties, with approval only able to be withheld if publication would prejudice Intellectual Property Rights or confidentiality.

## Reporting

Formal progress and financial reports will be required at 3 months (interim report), 12 months, 24 months and 36 months; and a final report on any remaining (post-Fellowship) outcomes of the project will be required within 6 months of the completion date of the Fellowship. Reports must include progress against agreed project milestones, contributions of participants directly related to the project, project expenditure, and other relevant information as requested. A template will be provided for these reports. Informal project planning and reporting will also occur through regular meetings with the Fellow's mentors.

## Other considerations

- Each applicant may only submit one application in a given funding round
- This is the third round of SynBio FSP Fellowships. If further funding round calls are made as part of the SynBio FSP program, no more than two applications may be made over the life of the program
- Applications may be withdrawn but may not be changed after submission. Additions, deletions and modifications will not be accepted after submission, unless invited
- Applications must conform to the prescribed page, word, and formatting conditions on the forms provided.

## How to Apply

Before applying you should read and understand these Guidelines and the sample Application Form.

Application packages must include:

- A completed Application Form [\[Download Application Form\]](#).
- A completed budget prepared using the Budget Pro Forma provided [\[Download Budget Pro Forma\]](#)
- A completed Milestone table prepared using the Milestone form provided [\[Download Milestone Form\]](#)
- A CV for the applicant and one for each Mentor, each completed on the CV Template provided [\[Download CV Template\]](#)
- A letter of support from the host Mentor, one from the CSIRO Mentor, and one from any partner organisations/collaborators.

The **Certification by the Host Organisation** at the end of the Application Form should be signed by an appropriate representative from the host organisation (e.g. Deputy Vice Chancellor of Research, Director of Research Office, or similar officer).

**Letters of support** should outline the strategic alignment of the research project with host organisation/CSIRO group/partner organisation/collaborator, and any expected cash contribution. The Host Organisation Mentor letter should also act as a recommendation and letter of support for the Applicant. Letters should be drafted on the organisation's letterhead and signed by an appropriate representative. Letters should be 1-2 pages long. Separate references may be sought from nominated referees to support the application and selection process.

All application documents must be assembled, in the order listed above, into a single PDF which must be submitted through the Host Organisation's research office by email to [SynBioFSP@csiro.au](mailto:SynBioFSP@csiro.au), no later than **5pm Australian Eastern Standard Time, 1<sup>st</sup> March 2019**.

## Enquiries

Enquiries should be made **via your Host Organisation's Research Office contact person** by email to [SynBioFSP@csiro.au](mailto:SynBioFSP@csiro.au), except for initial enquiries to help identify a Host Organisation/CSIRO Mentor, which may be sent directly to the FSP.