

Using the power of biology to solve challenges in defence

- DASA has launched a new Themed Competition: Engineering Biology for Defence and Security
- Funded by the Defence and Science Technology Laboratory
- Run in cooperation with the US Department of Defense
- Up to £1.5m funding available for engineering biology technologies

The [Defence and Security Accelerator](#) (DASA) is pleased to launch a new Themed Competition called [Engineering Biology for Defence and Security](#). Run on behalf of the [Defence and Science Technology Laboratory](#) (Dstl), this competition seeks proposals for innovative technologies that take synthetic biology concepts, and uses them to improve defence capability and address its challenges.

This competition will also involve the US Department of Defense (DoD). Both the Ministry of Defence (MOD) and DoD will have access to proposals submitted under this competition in order to jointly assess which proposals to fund.

This themed competition focuses on the following challenge areas:

- Challenge 1: Exploiting engineering biology for a step change in power and energy technologies
- Challenge 2: Materials for defence
- Challenge 3: Sensing

Key dates and funding

Up to £1.5m is available to fund multiple proposals for synthetic biology innovations.

The deadline to submit a proposal is midday 25 August 2022.

Do you have an innovation? [Read the full competition document and submit a proposal](#).

What is synthetic biology?

Synthetic biology is the design and fabrication of biological components and systems that do not exist in the natural world. It involves utilising synthetic biology concepts and turning them into real world solutions.

Engineering biology is a disruptive technology, identified as a key tool for achieving the sustainability targets set by the UK Government. The tools and technologies emerging from engineering biology have the potential to transform many parts of the UK industrial base, and Defence and Security in particular seeks to understand how new bio-enabled approaches can improve capability and also reduce its carbon footprint.

This competition seeks cutting edge, multidisciplinary research through the application of engineering biology tools and techniques, using novel research approaches and the discovery of new knowledge.

Engineering biology innovations for Defence and Security: Challenge areas

Submitted proposals should choose to target one or more of the below challenge areas.

Challenge 1: Exploiting engineering biology for a step change in power and energy technologies

This challenge area seeks concepts that can offer a step change in existing power source and energy storage solutions for military applications. For example:

- using engineered biology approaches to replace one or more components of a 'traditional' battery construction to improve energy, safety or other performance metrics
- using engineering biology to produce packaging or other materials that enhances a battery's safety or performance
- producing an entirely novel engineering biology solution to the production of useable electrical energy

Challenge 2: Materials for defence

This challenge area seeks materials for a range of uses in Defence and Security. This includes physical protection and materials capable of survival in extreme environments. For example:

- functionalised material e.g. self-disclosing for fatigue and corrosion, non-visible damage
- lightweight but strong structural materials, including composites
- novel camouflage solutions, including active or reactive colour change materials, variable emissivity surfaces and very high performance acoustic absorbers
- materials for eye protection, covering physical and laser protection

Challenge 3: Sensing

Sensing and sensor technologies are a fundamental enabler of Defence and Security activities. This challenge area seeks technology that moves beyond traditional analytical sensors. For example:

- novel sensing modalities delivered through engineering biology, i.e. mediated by a new component or a new combination of known components to sense new materials
- sensing modalities that are enabled by bioengineered components
- biomimetic or bioinspired sensing approaches

Want to learn more about these challenge areas? [Read the full competition](#)

[document here](#).

Webinars and online events

Competition Webinar: 5 July 2022

This webinar will provide more information on the challenge areas and how to submit a proposal. There will also be an opportunity to ask questions in the Q&A.

[Register now](#)

If you're interested in this technology area please also take a look at [Generation-after-next Wearable Technologies](#). Please note that you cannot submit the same proposal to both competitions. If you're interested in applying but unsure which competition your innovation would be best suited to, contact your [local innovation partner](#).

Submit a proposal

Do you have a solution or novel approach that may help our ability to utilise engineering biology concepts in defence and security? Submit an idea and help DASA, Dstl and DoD exploit synthetic biology to address key defence challenges.

[Read the full competition document to learn more and submit a proposal.](#)