Improving Safety and Efficacy Through Targeted Drug Delivery

Closing date: 1:00 pm, 21st August 2018 (two stage – Stage 1 to Stage 2)

Applications are sought for research to improve treatment outcomes through the use of targeted drug delivery techniques. Techniques of particular interest include i) nanocarriers such as liposomes, microspheres and emulsions ii) externally applied energy forms and iii) highly specific viral vectors, including oncolytic therapies, but other novel targeting techniques are welcome. Applications may investigate novel or repurposed drugs using targeting technologies.

Applications must concentrate on determining the clinical efficacy of interventions using targeted drug delivery. The inclusion of embedded hypothesis-driven mechanistic studies within the main clinical evaluation is strongly encouraged.

This call was originally opened in March 2017, but at that time did not receive any applications. This second opening of the call indicates the EME Programmes continued interest in this area.

Projects must have a strong collaborative approach, involving at least two of academia, NHS and industry. The EME Programme is particularly keen to encourage collaboration with small and medium enterprises.

If your proposed study falls outside the scope of this call please consider submitting to the EME researcher-led workstream.

Applications are expected to set out programmes of work which may contain distinct stages. It is expected that the early stages of the study will, if successful, lead onto a full evaluative clinical study or trial, which is in the remit of the EME Programme. This study must also be included and clearly specified within the application. Clinical trials embedded within the programme of work must be large enough to detect a meaningful effect.

Applications to this call may also include initial stages such as:

- The limited steps needed to progress the development of an intervention to a stage suitable for use in an accredited clinical service;
- Prospective clinical work or retrospective research utilising existing big data or clinical samples to inform the main study;
- Pilot or feasibility studies.

As a rough guide it is expected that these early stages will be complete within the first 18 months of the project and must not contribute more than 25% to the total cost or duration of the project.

Applicants will need to make a strong case for the future importance of the intervention through providing a measurable positive impact on health, innovation or future wealth creation and for the ultimate benefit of individual patients’ or the wider NHS.
rehabilitation or long-term care. Within these studies EME supports research to improve the understanding of the mechanisms of both diseases and treatments.

The programme supports translational research evaluating a wide range of novel or re-purposed interventions. The interventions may include diagnostic or prognostic tests and decision-making tools, drugs or biological compounds, psychological treatments, medical devices, and public health initiatives delivered within the NHS.

The EME Programme primarily supports clinical trials, and other robustly designed studies that test the efficacy of interventions. The interventions should have the potential to improve patient care or benefit the public. The programme will only support studies where there is sufficient evidence that the intervention might work in man, i.e. that there is ‘proof of concept (pdf, 55.19 KB) ’.

Innovative study designs involving stratification, the use of routinely collected digital data or novel methodologies are strongly encouraged.

Where appropriate, the programme encourages hypothesis-testing mechanistic studies (pdf, 124.55 KB) integrated within the main efficacy study. These studies could explore the mechanisms of action of the intervention, the causes of differing responses, or promote an understanding of any potential adverse effects and how these could be reduced; they could also contribute to understanding of the disease. The programme will also support mechanistic studies that follow on from on-going or completed clinical studies funded by the NIHR which can use data or samples from these studies.

The programme will accept applications for studies that use clinical or well-validated surrogate outcomes. It will also consider studies that validate potential surrogate outcomes against a primary clinical outcome, within the main clinical trial.

The EME programme WILL support:

- Research to determine proof of clinical efficacy, size of effect, and long-term safety in a well-defined population.
- The evaluation of a broad range of interventions that have the potential to maintain health, treat disease or improve recovery.
- Hypothesis-testing research based on an efficacy study, to explore the mechanisms of action of interventions, causes of differing responses or disease mechanisms. These studies use data or samples obtained and stored from both treatment and control groups of a clinical study, to arrive at conclusions that would not arise from a simple cohort study.
- Proposals that include a series of linked stages (usually 2 to 3) with progression to the main clinical evaluation dependent on the outcome of the previous stage(s). The criteria for progression must be clearly defined. The main clinical evaluation should require more than 75% of the total project costs and commence within 18 months of the project start date.
- Pilot and feasibility studies where the main study would be within the remit of the EME programme. These studies may be either stand-alone or can be the initial part of a staged project that includes the main clinical evaluation as a subsequent stage.
- The limited steps needed to progress the development of an intervention to a stage suitable for use in an accredited clinical service when included as an initial stage prior to commencing the main clinical evaluation.
- Studies using novel or infrequently-used study designs that increase the value of a study, by maximising the chances of demonstrating the benefit of an intervention, increasing the knowledge that can be gained through the study, or by making the study more efficient.
- The EME Programme welcomes studies adopting novel and efficient study designs or that include the development or testing of new methodologies in an embedded methodological
Where delivery of the EMS is integral to the main efficacy trial the additional costs should be modest and the purpose should be to explore issues that may potentially increase the efficiency of trials and value for money. The proposed work should be included in the EME application. Where the EMS requires more substantial funding and can be delivered independently from the running of the main trial, then applicants might wish to consider applying to the MRC-NIHR Methodology Research Programme (MRP).

http://www.mrc.ac.uk/funding/browse/methodology-research-programme/

Any such application would be independent of the application to the EME Programme. For more information please contact the MRP programme: MRPGrants@headoffice.mrc.ac.uk

The EME Programme WILL NOT support:

- Large effectiveness studies that test the impact of the introduction of an intervention in the wider NHS.
- Hypothesis-generating studies based on sample or data collections from patient cohorts.
- Confirmatory studies, equivalence studies, ‘confidence in effect’ studies or studies of incremental modifications to existing interventions.
- Research into areas where the health need is primarily outside the UK.
- Any research involving animals or animal tissues (see the NIHR research page for more information).

Applicant eligibility

Researchers in England, Northern Ireland, Scotland and Wales are eligible to apply for funding under this Programme. Anyone who considers that they can carry out high-quality research is likely to be eligible. If you have any concerns regarding your eligibility to apply we advise that you contact us before completing an application. We welcome applications from all sectors.

Studies funded by the EME Programme are generally UK based. We will consider funding an international study where the chief investigator and lead institution are based in the UK and the study is relevant to and a priority for the UK population, and where overseas recruitment is funded from other sources. It will be exceptional for NIHR programmes to fund recruitment overseas. The EME Programme is open to bids to support a UK recruitment arm of an international study where the study is relevant to and a priority for the UK population; a UK based principal investigator should be the lead applicant. Each project will be considered on a case by case basis and applicants interested in submitting a proposal for an international study should contact us for advice.

Collaboration and team expertise

Proposals should involve a multi-disciplinary team with appropriate skills and experience, including an appropriately experienced statistician on the study team. The involvement of an accredited Clinical Trials Unit (CTU) is strongly encouraged in the design of clinical trials. Where appropriate, applicants are expected to work with suitably accredited clinical research facilities.

Applications to this call should be in the form of a collaboration. All applications should include significant contributions from at least two of the following partners: industry, academia, and the NHS. The EME Programme is particularly keen to encourage collaboration with small and medium enterprises. The involvement of charities is also welcome, and if your research will be co-funded by a charity, you must notify the EME Programme.

The EME Programme welcomes applications proposing joint funding arrangements. You must clearly demonstrate how the arrangement would work in practice and be explicit about where responsibility lies contractually in terms of publication, and research governance issues for example. We expect that any other organisations contributing funding would provide an ‘open grant' and not require any terms, conditions or limitations on the research. The Programme would require assurance that the funding contribution would be guaranteed for the duration of the research, and a letter of intent should be included with the application. If your application is successful, you should
note that the EME Programme will require sight of the agreement between you and any other funding partners before any contract is issued.

Where your research proposal involves industry collaboration, you should ensure that the arrangements and details are determined early in the study development. The EME Programme will require assurance that any industry collaboration allows transparency in the project design and in the analysis and publication of results (including if these are negative). If the collaboration involves the supply of reagents, drugs or other technologies, we will require written assurances that the industry collaborator will provide these products for the duration of the study.

**Timescales and funding**

There are no fixed limits on the duration of projects and proposals should be tailored to fully address the questions posed. Applicants should be aware that they are competing for limited funds and proposals should represent good value for money. All funding requested should be clearly justified, but there is no upper limit.

**Public Involvement**

The EME Programme expects patient and public involvement in study design, implementation and dissemination of results. Applications must demonstrate how patients or members of the public have been involved in the study design and how they will be involved in the conduct and management of the trial. Patient, public or carer representation is required on management and steering committees. Comments from public and patient reviewers will be obtained during peer review and at the EME Board. For further guidance please see the EME website.

**Project Management and monitoring of studies**

Where appropriate, projects funded through this call should be organised into distinct stages (usually up to three). At the end of each stage there should be clearly delineated go/no-go decision points with measurable criteria which will allow an assessment of whether the stage has completed successfully. The purpose of this delineation is to clearly identify critical points that determine whether the research should proceed to the next stage. It is anticipated that there will be a significant number of projects that will fail to meet criteria in the early stages. The EME Programme retains the right to reassess project progress in light of other new developments in the research area before subsequent stages of funding are released.

Within each stage it is expected that there will be a number of milestones which will allow the project team and EME Programme to track progress through routine project reporting. Applicants will need to demonstrate a clear management plan for all stages of the project as well as detailed plans for how they will actively manage individual stages.

**Research Networks**

The EME Programme expects that applicants will work, where appropriate, with the relevant NIHR Clinical Research Network.

**Governance and Regulation**

Applicants should follow the Medical Research Council’s Good Clinical Practice guidelines in planning how studies, particularly RCTs, will be supervised.

Note that trials involving medicinal products must comply with ‘The Medicines for Human Use (Clinical Trials) Regulations 2004’. In the case of such trials, the NIHR expects the employing institution of the chief investigator to be nominated as the sponsor. Other institutions may wish to take on this responsibility or agree co-sponsorship with the employing institution. The NIHR is prepared to accept the nomination of multiple sponsors. Applicants who are asked to submit a full proposal will need to obtain confirmation of a sponsor(s) to complete their application. The NIHR reserves the right to withdraw from funding the project if they are not satisfied with the arrangements put in place to conduct the trial.
The MHRA (info@mhra.gsi.gov.uk) can provide guidance as to whether your trial would be covered by the regulations. The Department of Health/MRC website also contains the latest information about Clinical Trials regulations and a helpful FAQ page.

**Application Assessment Process and Criteria for Assessment**

For information about the Application Assessment Process and Criteria for Assessment, please see [https://www.nihr.ac.uk/eme](https://www.nihr.ac.uk/eme)

**Additional Resources for Applicants**

For additional resources to support the development of your applications, please see [https://www.nihr.ac.uk/eme](https://www.nihr.ac.uk/eme)

**Making an application**

If you wish to submit an outline proposal please complete the web based application form.

**Further Information**

Further information on applying to the EME Programme is available from the Frequently Asked Questions (FAQs) section on the EME website. The EME team welcomes enquiries at eme@nihr.ac.uk or 02380 594303.

*In line with the government’s transparency agenda, any contract resulting from this tender may be published in its entirety to the general public.*