

AOCMF: Guidelines for research grant applications

'Bone regeneration using tissue engineering and CAD-CAM technology: Their impact on facial bone reconstruction'

Applications which do not conform completely to the website application format or ignore or fail to comply with any part of the guidelines may be returned to the applicant. They will not be considered unless resubmitted by the deadline.

General information

The AOCMF Research and Development Commission is pleased to announce a first call for applications in the field of 'Bone regeneration using tissue engineering and CAD-CAM technology: Their impact on facial bone reconstruction'

Background

Ablative surgery or major facial trauma in the maxillofacial area leads to bone defects that predispose functional as well as aesthetic complications. The bone defects of the facial skeleton need immediate reconstruction to provide satisfactory function of the jaws as well as an acceptable aesthetic outcome. Reconstruction of the maxillofacial area with composite microvascular flaps is challenging and needs a team with experienced surgeons. The surgery is time consuming not only because of the microvascular procedures themselves, but due to demand for optimize intraoperatively the configuration and symmetry of the facial skeleton.

The development of three-dimensional (3D) computerized modelling in medicine has been rapid during the last years. However, the use of above mentioned CAD-CAM (computer aided design and manufacturing) is still limited. The technology gives tools for surgeons to plan and to train virtually for the surgery, to design, and manufacture the implants needed for the surgery.

Bone tissue engineering requires several constructive factors. These include among others biocompatible scaffolds and matrices, cells, osteo- and angiogenic growth factors. Modern 3D CAD-CAM technology enables patient-specific scaffold and matrix manufacturing. The scaffold, matrix or implant temporarily replaces the missing part of jaw and allows cells to generate bone accordingly leading to anatomic and symmetrical restoration. Increasing number of studies, both experimental and clinical, are available that show bone regeneration in facial bone defects using CAD-CAM technology, patient-specific matrices and cells.

Research questions

The use of CAD-CAM and tissue engineering for facial bone defect repair with regard to the outcome of orthopedic, oral and maxillofacial procedures is not well established. In spite of clear development of CAD-CAM technology in medicine and regenerative medicine in surgery, modern facial reconstructive surgery will not be possible without focused high quality, multispecialty research both in translational and clinical level.

For example:

- What are optimal materials and/or bone substitute materials for additive manufacturing (CAD—CAM) for scaffolds, matrices and implants?
- What are the critical stages in CAD-CAM process in medicine?
- Are added cells in bone regeneration in clinical settings necessary?
- Bone defect repair and direct (digital) manufacturing technologies in clinical settings?

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| Focus | <p>The focus of the research projects include to repair bone defects using bone substitute materials, digital design technology and additive manufacturing processes.</p> <p>The proposed projects:</p> <ul style="list-style-type: none"> • May focus on clinical and/or translational research • May be epidemiological, and/or therapeutic • May include imaging and planning aspects of the above-mentioned facial skeleton defects • Can be related to tissue biology/tissue engineering, implant development, documentation, diagnosis and treatment • Should improve educational content for courses that address reconstructive surgery and tissue engineering |
| Type of research | <p>This open call is suitable to both preclinical and clinical research.</p> |
| Peer review | <p>All applications will be independently peer reviewed. Projects will be selected based on the novelty, feasibility and significance of the proposal; attributes of the candidate, including potential for independence; evidence of institutional commitment; and the research environment.</p> |
| Details of grants | <p>We invite grant applications for this call to be funded in 2017.</p> <p>The deadline for submission is: July 20, 2016, by 17:00 hours (GMT).</p> <p>Applicants should be aware that the total amount available for this program is limited, and that all applications will be rigorously scrutinized with regard to their finances as well their scientific merit.</p> |
| Application form | <p>The application must be submitted in English using the AOCMF application form for applications in the field of 'Bone regeneration using tissue engineering and CAD-CAM technology: Their impact on facial bone reconstruction'. Do not exceed the indicated number of characters and pages. This allows adequate evaluation regarding relevance, quality and cost of the projects.</p> <p>Applications which are incomplete or do not comply with our guidelines may not be considered.</p> <p>The following topics must be covered in the application under these headings:</p> <ul style="list-style-type: none"> • General Information: at least 3 keywords must be chosen from the provided pdf list • Abstract of the research project • Outline of the problem • State of the art in this field • Past research of the applicant in this field • Hypothesis, open questions, aim of the project • Detailed research plan: <ul style="list-style-type: none"> → Study subjects, specimens or materials → Effect and outcome variables → Methods for taking measurements, data management and analysis → Estimation of sample size and power • Relevance of the project • Time schedule • Relevant literature by the applicant and by other authors <p>The application must be e-mailed as an unprotected Word-document.</p> |

Funding policy

Duration: up to 3 years

Salaries

Salaries for the principal applicant and co-applicants will not normally be approved.

If the project is only possible with some funding for the applicants, it must be clearly shown that the funding requested is essential, project specific and well documented, and that the individual has no other source of grant or income.

Written and signed confirmation is required with the application from the PI and the head of his/her institution, indicating that no alternative source of income (including salary, stipend or grant) is available. This confirmation must indicate how this/those individual/s are currently employed and paid. Applications which fail to provide this information will be returned to the applicant.

International conference

In case AOCMF will organize an international conference on the study subject, participating and presenting interim results will be mandatory. All travel-related expenses must be covered by this grant award.

Travel expenses

Only project specific travel expenses will be granted. A maximum amount of CHF 1,500 for one conference a year to present results will be covered. This amount includes the expenses for the AOCMF conference.

Indirect costs

No overhead contributions are made to the submitting organization.

Additional funding

Additional funding from any other source must be disclosed in detail. If other funding is available, it must be made clear how this will affect the overall budget of the project if the AO grant application is successful.

Conditions

Support can only be granted if the funding contract is signed by the principal applicant/s and the head of the submitting institution within two months after receipt. Please note that the contract is not negotiable.

Notification

The applicant will receive a confirmation e-mail from AOCMF within a week regarding receipt of the application.

Decision

Decisions will be communicated in April 2017 after the submissions' deadline. Applications should not be resubmitted unless the applicants are requested to do so.