

Final Report

Project acronym: *jawIMPLANT*

Project number: *4198*

M-ERA.NET Call 2016

Period covered: 01/07/2017 to 31/03/2020

Publishable project summary

The research focussed on alternative treatment techniques, separating immediate and long-term reconstruction stages: Immediate reconstruction targeted on drug-eluting, polymer-based spacer implants enabling local high-dose chemo-/radiotherapy without damage of transplanted autografts, conserving muscle tension over ~6 months. Then, for the final reconstruction novel patient-specific manufactured maxillofacial implants without autografts were developed. Neoformation of vascularized bone in these implants was the approach for tissue engineering. Compared to the state-of-the-art (autografts, Ti implants), advances for novel metal-polymer hybrid implants for the functional (mastication, speaking, etc.) and aesthetical jawbone reconstruction strongly improved accuracy (dental interocclusion), mechanical strength, antimicrobial protection, low irritation of surrounding tissue and the possibility for CT imaging in oncological re-checks.