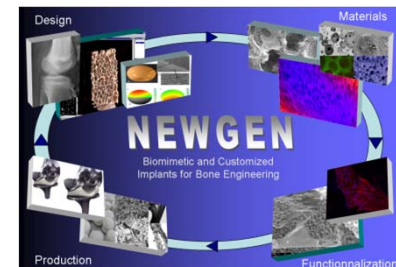


- ✓ **Complete denomination:**
Department of Dental Materials and Biomaterials Research
(Zahnärztliche Werkstoffkunde und Biomaterialforschung, ZWBF)
RWTH Aachen University Hospital
- ✓ **Location:** Aachen, Germany
- ✓ **Director:** Univ.-Prof. Dr.-Ing. Horst Fischer
- ✓ **Contact person in NEWGEN:** Univ.-Prof. Dr.-Ing. Horst Fischer
- ✓ **Working Group involvement:** WG1-4, focus on WG 2 Manufacturing and characterization of 3D-porous scaffolds
- ✓ **Staff of ZWBF team:** 10 scientists, 4 technicians, and 25 student coworkers
- ✓ **Research topics:** Bone substitutes, calcium phosphates, organic-inorganic composites, scaffolds, rapid prototyping, surface functionalization, bioactivation, tissue engineering, cell culture tests, biomechanical in vitro testing
- ✓ **Researchers expertises:** Generative manufacturing,
Novel organic-inorganic bone substitute implants

ZWBF/RWTH Aachen

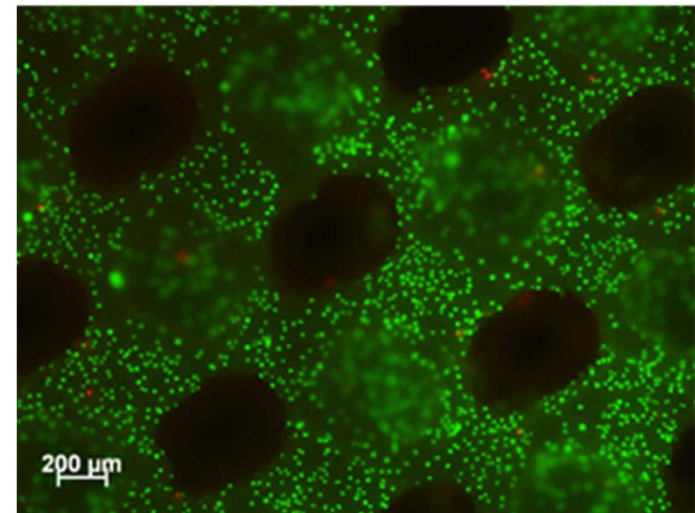
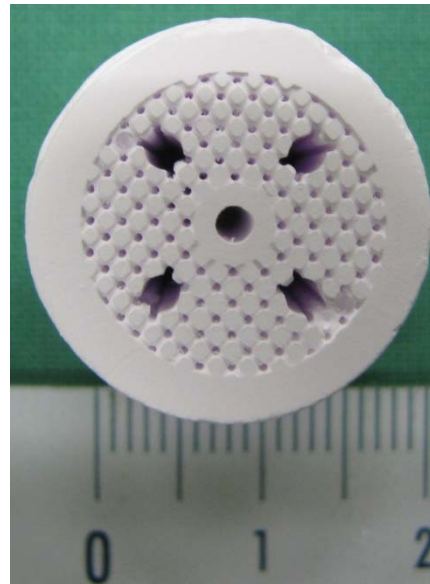
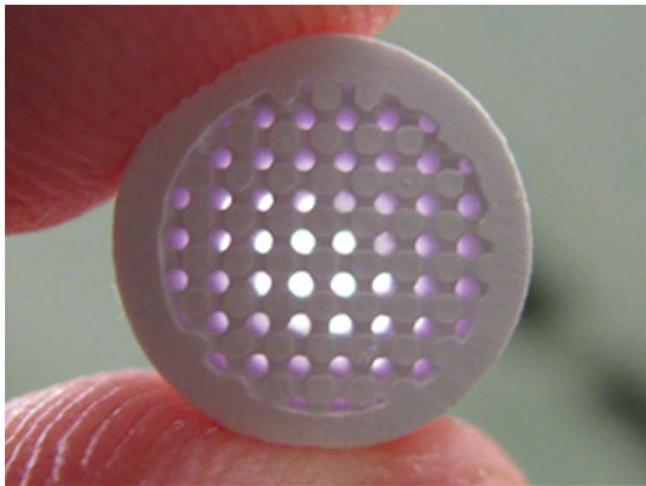
RWTH Aachen University Hospital
Pauwelsstrasse 30
52074 Aachen - GERMANY
[**www.biomaterialforschung.de**](http://www.biomaterialforschung.de)



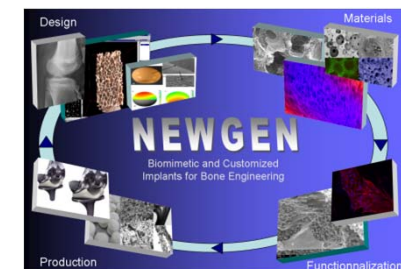
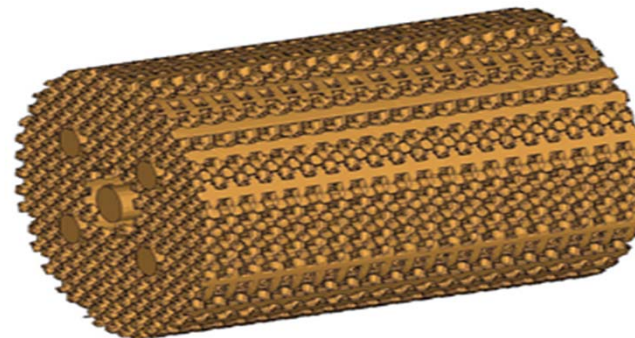
COST Action MP1301

✓ Scaffolds for the treatment of segmental defects of long-bones

Using *3D wax printing* and tailored *slip casting* technique



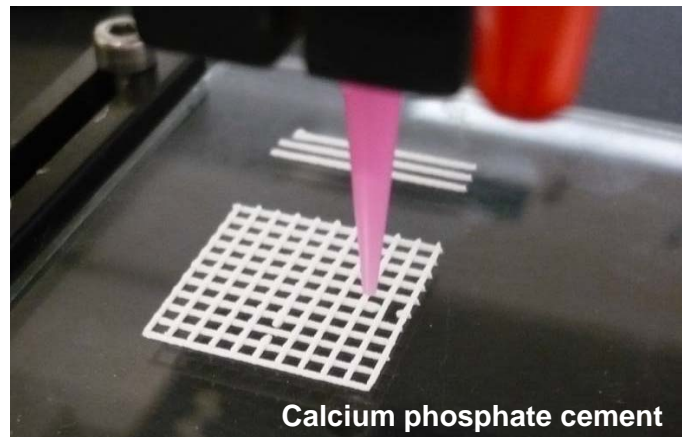
Lindner M, Bergmann C, Telle R, Fischer H (2013). Calcium phosphate scaffolds mimicking the gradient architecture of native long bones. J Biomed Mater Res Part A A:1-8.



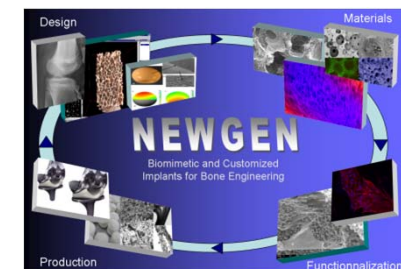
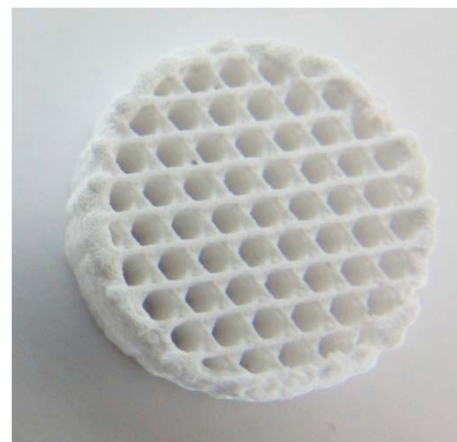
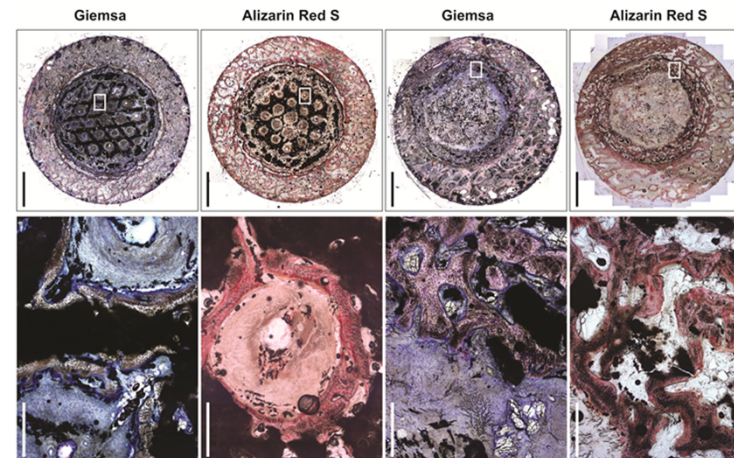
COST Action MP1301

✓ Manufacturing of tailored bone substitute implants

Using *Fused Deposition Modelling* technique



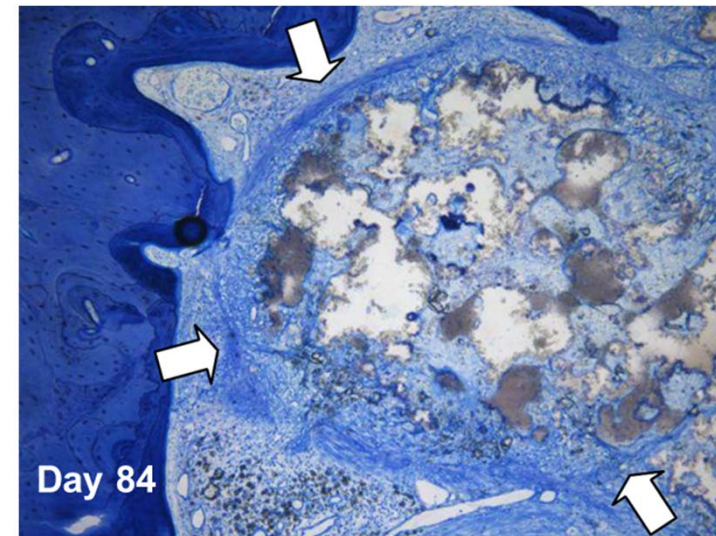
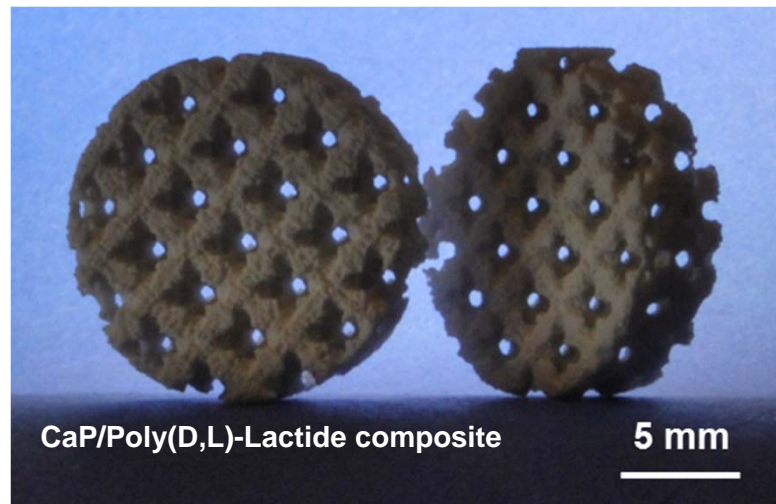
Bergmann CJD, Odekerken JCE, Welting TJM, Jungwirth F, Devine D, Bouré L, Zeiter S, van Rhijn LW, Telle R, Fischer H, Emans PJ (2014). Calcium phosphate based three-dimensional cold plotted bone scaffolds for critical size bone defects. *Biomed Res Int* 852610:1-10.



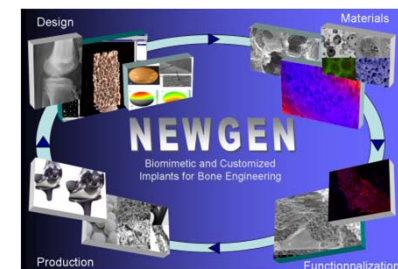
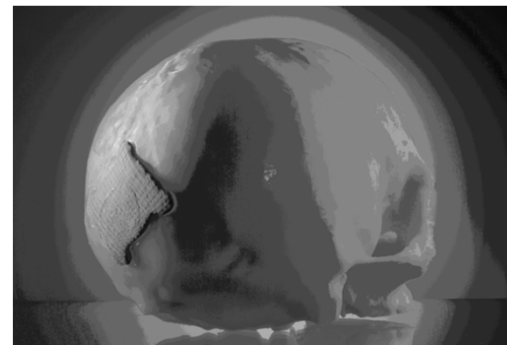
COST Action MP1301

✓ Manufacturing of tailored bone substitute implants

Using *Selective Laser Melting* technique



Lindner M, Hoeges S, Meiners W, Wissenbach K, Smeets R, Telle R, Poprawe R, Fischer H (2011). Manufacturing of individual biodegradable bone substitute implants using selective laser melting technique. J Biomed Mater Res (Part A) 97:466-471.

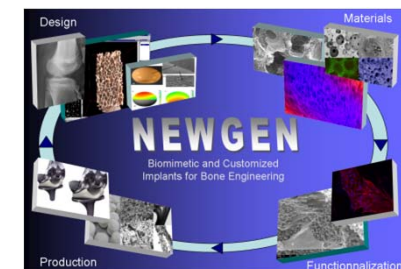
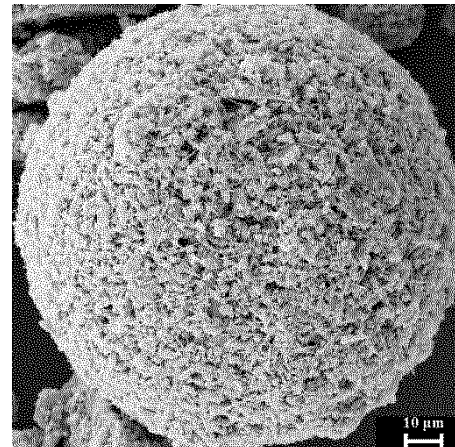


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- ✓ **Manufacturing of tailored bone substitute implants**
Using *Powderbed-based 3D printing* technique

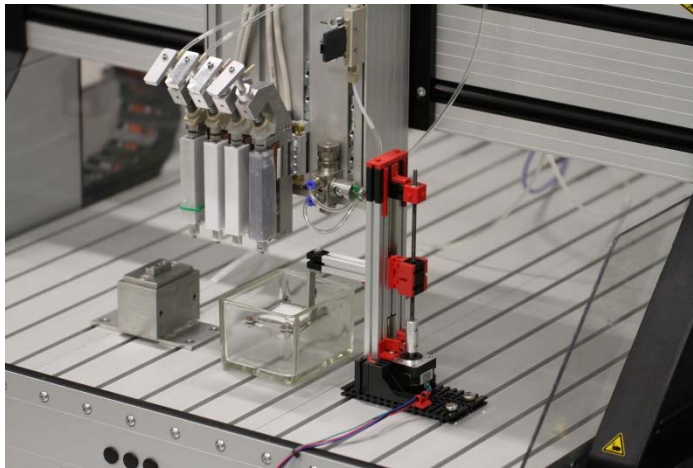


Bergmann C, Lindner M, Zhang W, Koczur K, Kirsten A, Telle R, Fischer H (2010). 3D-printing of bone substitute implants using calcium phosphate and bioactive glasses. J Eur Ceram Soc 30:2563-2567.

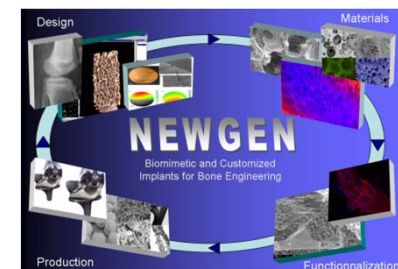
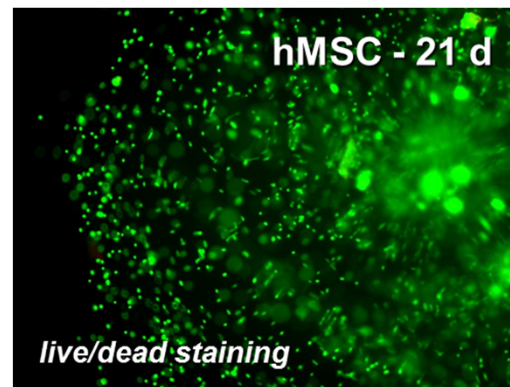
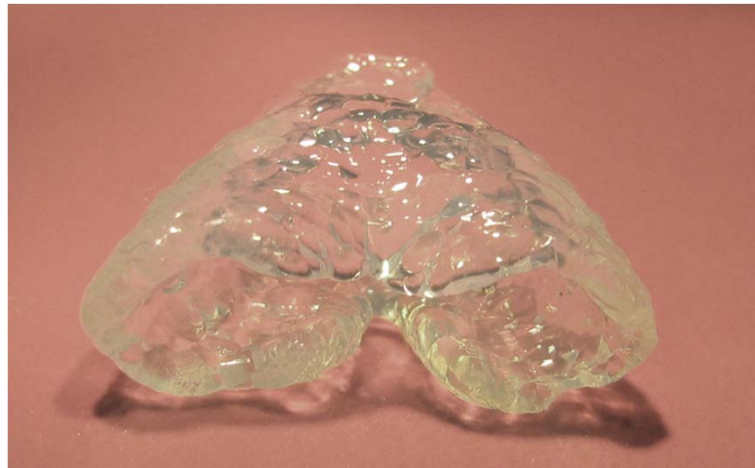


COST Action MP1301

- ✓ **Biofabrication of hydrogel-based cell-laden constructs**
Using *3D bioprinting* technique



Duarte Campos DF, Blaeser A, Weber M, Jäkel J, Neuss S, Jahnen-Dechent W, Fischer H (2013). Three-dimensional printing of stem cell-laden hydrogels submerged in a hydrophobic high-density fluid. *Biofabrication* 5:015003.



COST Action MP1301