

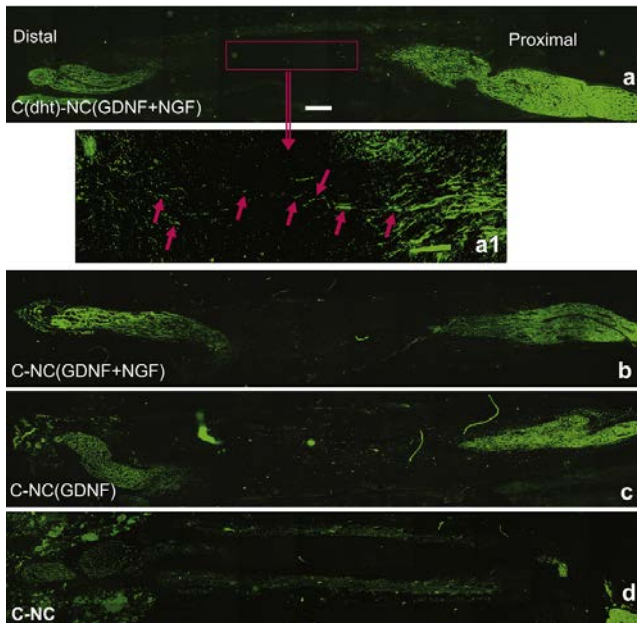
# Focal Area Regenerative Surgery



Tissue engineered cartilage (picture: I. Martin)

The Focal Area Regenerative Surgery covers a field of multidisciplinary research and clinical applications that aim to repair, replace or regenerate tissue to restore organ function. This rapidly emerging field does not focus on classical forms of surgery but on regenerative intervention in the case of congenital defects, damage, trauma or aging.

The Regenerative Surgery Focal Area integrates surgical and regenerative medicine research groups specialized in the development of new technologies, bio-engineered implants, therapeutic biomaterials and tissue grafts for surgical reconstruction of damaged tissues and organs. In addition to research activities directly aimed at clinical applications, the focal area also develops 3D culture systems as bioreactors and hydrogels as well as in vitro model systems to study tissue or tumor biology. Possible applications include the targeting of skeletal tissue, the peripheral nervous system or muscle. Research involves highly interdisciplinary activities in biology, materials, engineering, and pharmaceutical sciences. It is linked in many ways with technologies developed within other Focal Areas at the Department of Biomedical Engineering.



Longitudinal sections of regenerating nerve inside the NCs histochemically stained fo. (picture: S. Madduri et al. (1))

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References

(1) Srinivas Madduri, Pietro G di Summa, Michaël Y Papaloïzos, Daniel Felix Kalbermatten, Bruno Gander, "Effect of controlled co-delivery of synergistic neurotrophic factors on early nerve regeneration in rats", in: Biomaterials, Vol. 31, Nov 2010, pp 8402-8409

