



Interreg
Deutschland - Danmark



EUROPEAN UNION

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Dieses Projekt wird gefördert mit Mitteln des Europäischen Fonds für regionale Entwicklung.



BONEBANK- Result

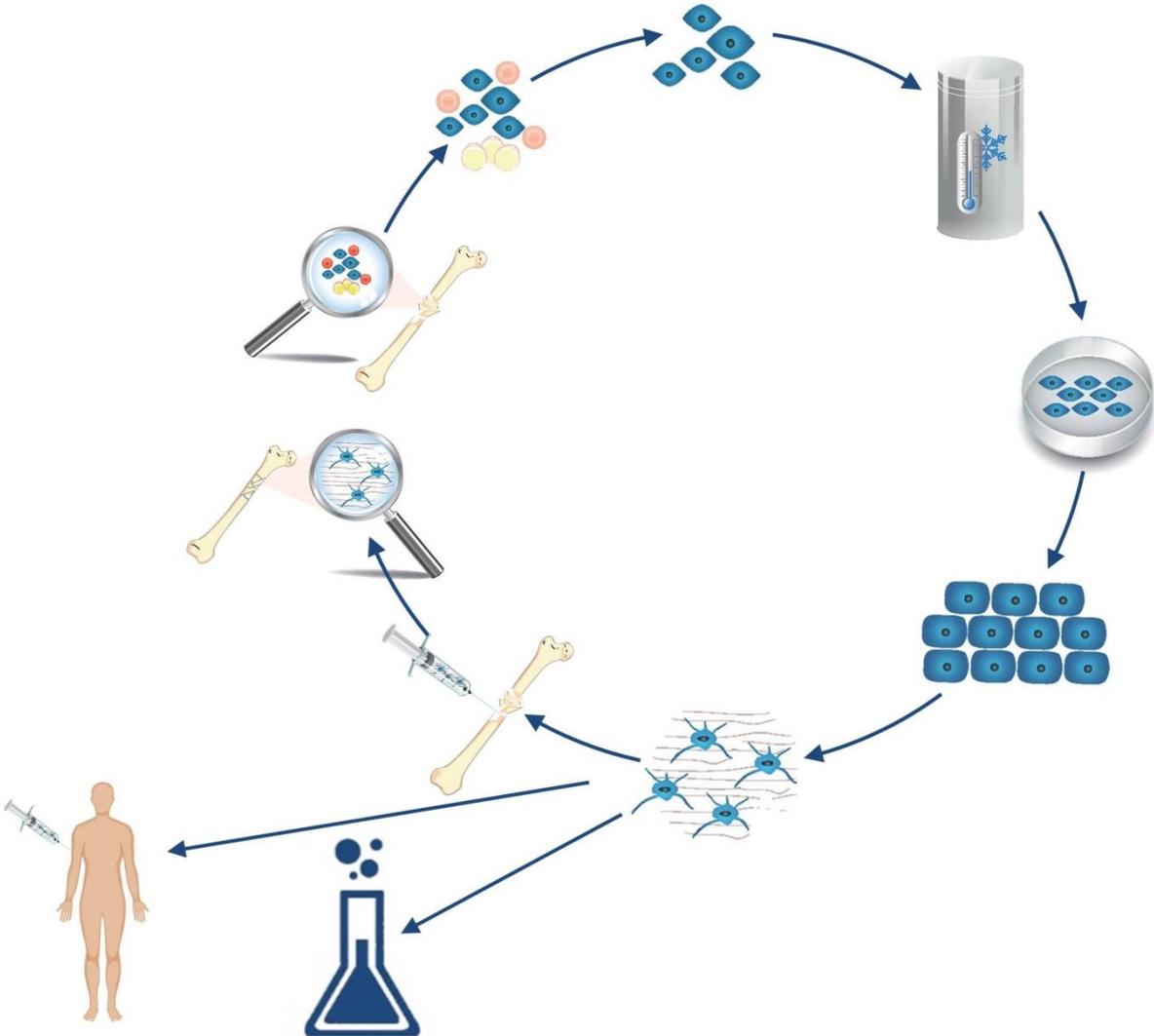
Development of a transport chain and of an injection device

Lina Nießen, University Medical Center Schleswig-Holstein, Germany

Bone Innovation Summit 2019

13 February 2019

PROCESS CHAIN OF BONEBANK



HARVESTING AND TRANSPORT

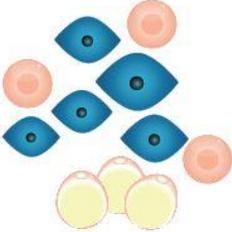


routine operations
e.g. fracture
treatment or joint
replacement



harvesting of
bone material

e.g. bone stem cells, fat
cells and hematopoietic
cells



isolation of
bone stem cells

TRANSPORT REGULATIONS FOR HUMAN MATERIAL



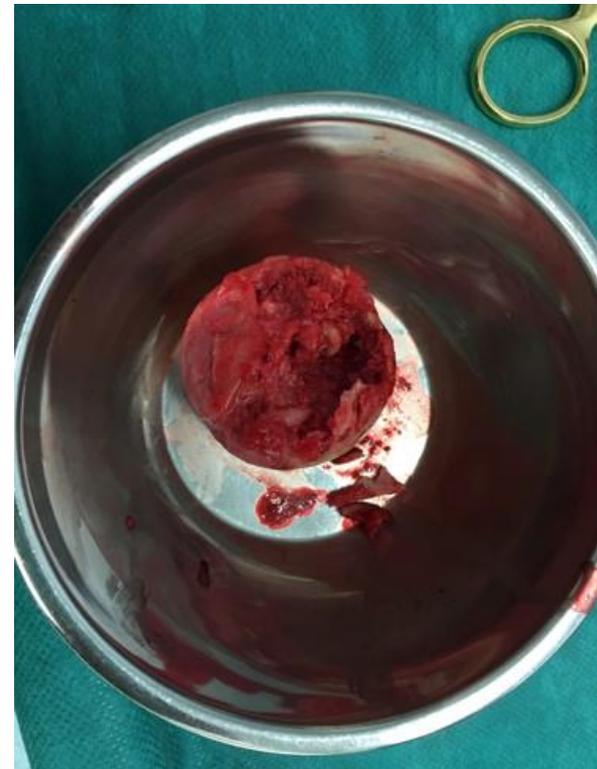
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

- Regulation for road traffic regard to packaging and labelling
 - Class 6.2 infectious substances
 - UN3373 – biological substance, category B
 - Packaging Instruction P650

HARVESTING IN THE OR IN LÜBECK



bone marrow



femoral head

TRANSPORT CHAIN IN BONEBANK



bone sample harvested

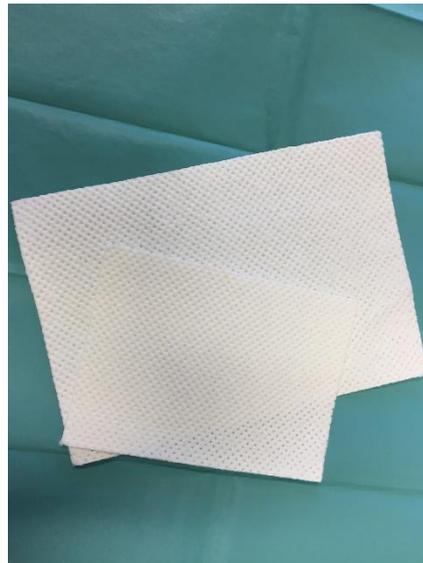


bone sample in the primary container

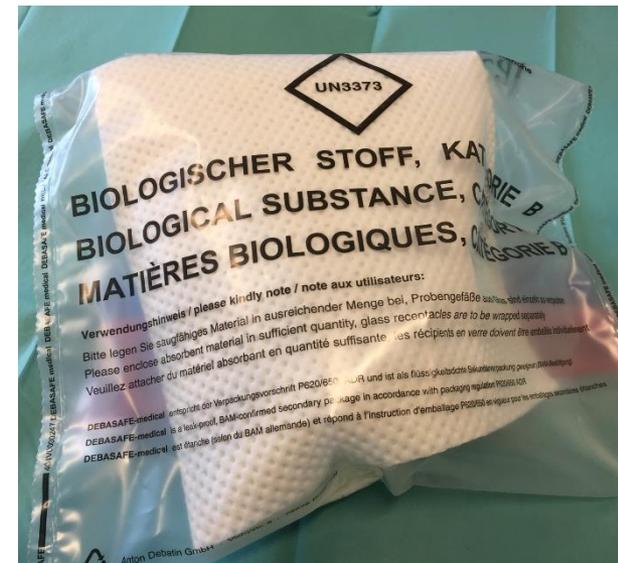
TRANSPORT CHAIN IN BONEBANK



primary container

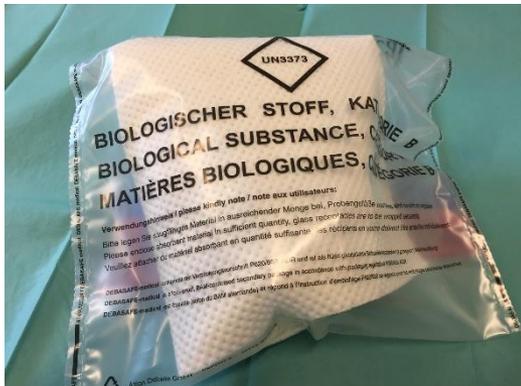


absorbent material



secondary packaging

TRANSPORT CHAIN IN BONEBANK



secondary packaging

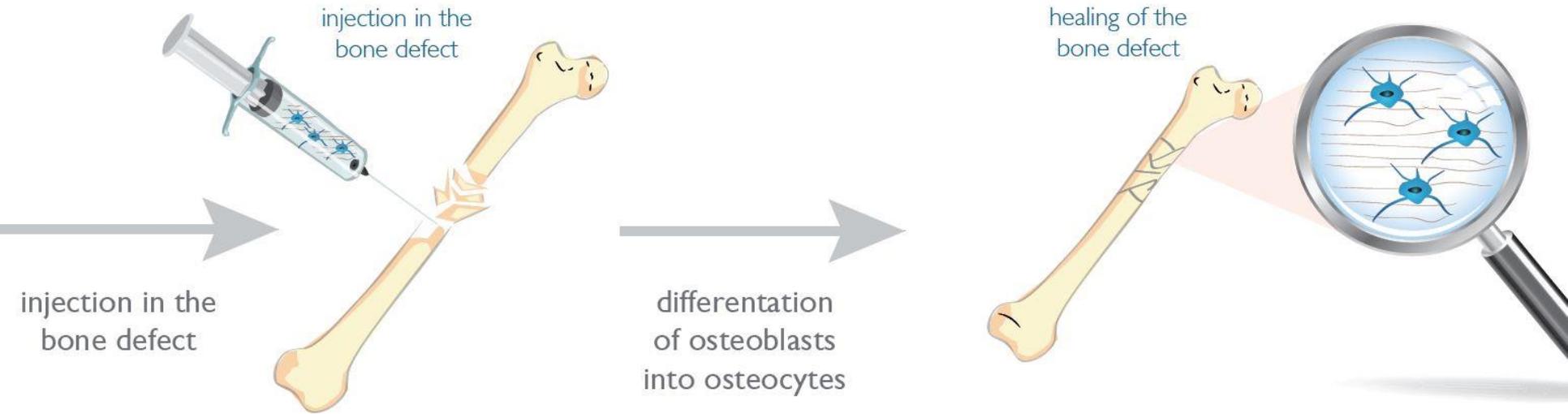


temperature logger



transport box

INJECTION PROCESS



NON-UNIONS



Non-Union: fracture without consolidation after 9 month

Hypertrophic: caused by instabilities in the fracture gap. This prevents a callus bridge and union of the bone

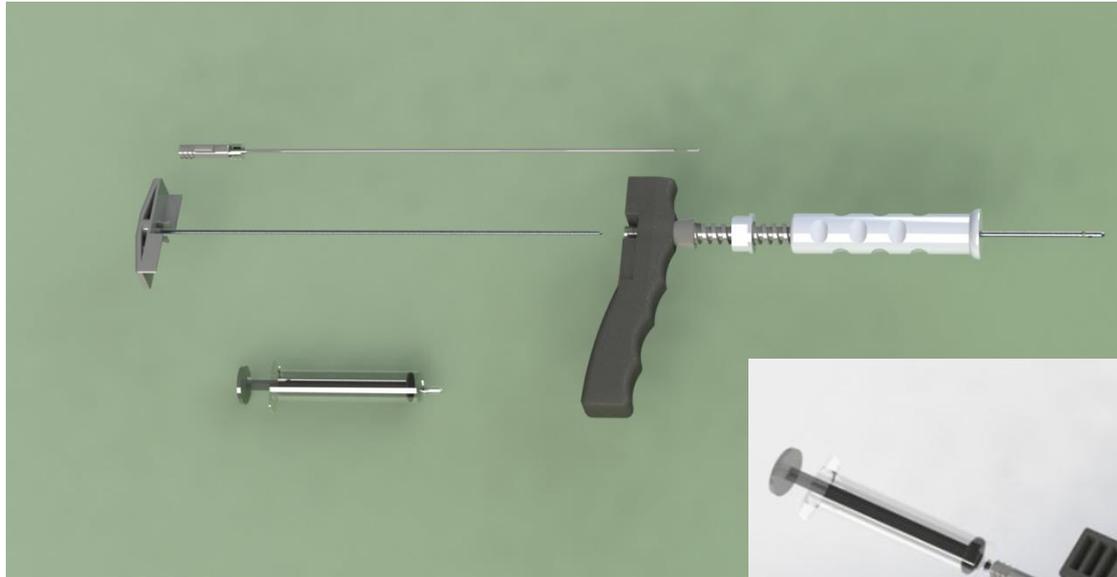
Atrophic: viability is disturbed, by for example a disturbance of the fragment blood flow and vascularization

INJECTION PROCESS

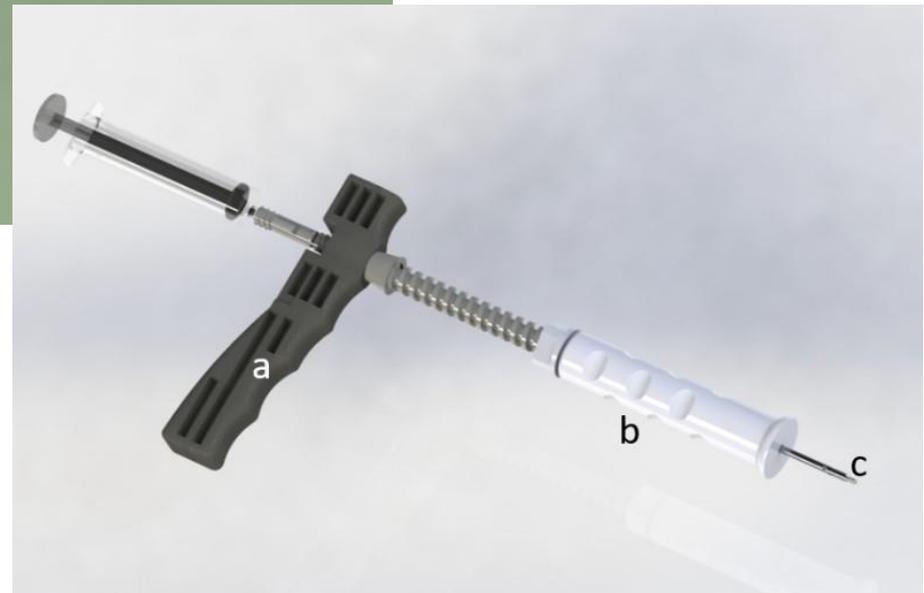


Disadvantage: too long and inconvenient for the injection of stem cells in a non-union

CONCEPT OF A NEW INJECTION DEVICE



- (a) ergonomic handle
- (b) depth limiter
- (c) cannula





Thank you for your attention!

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