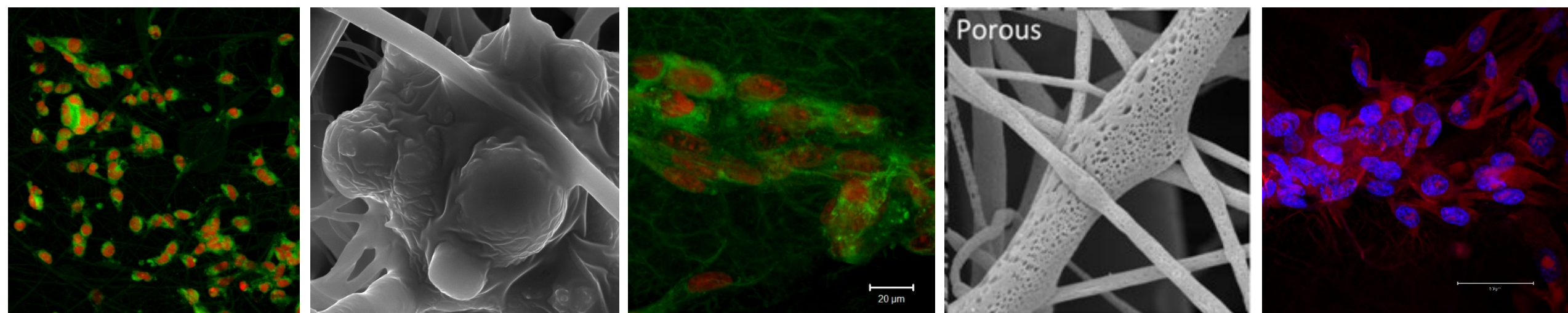




Scaffolds: The journey there and back again.





Aim of our research is to help patients.

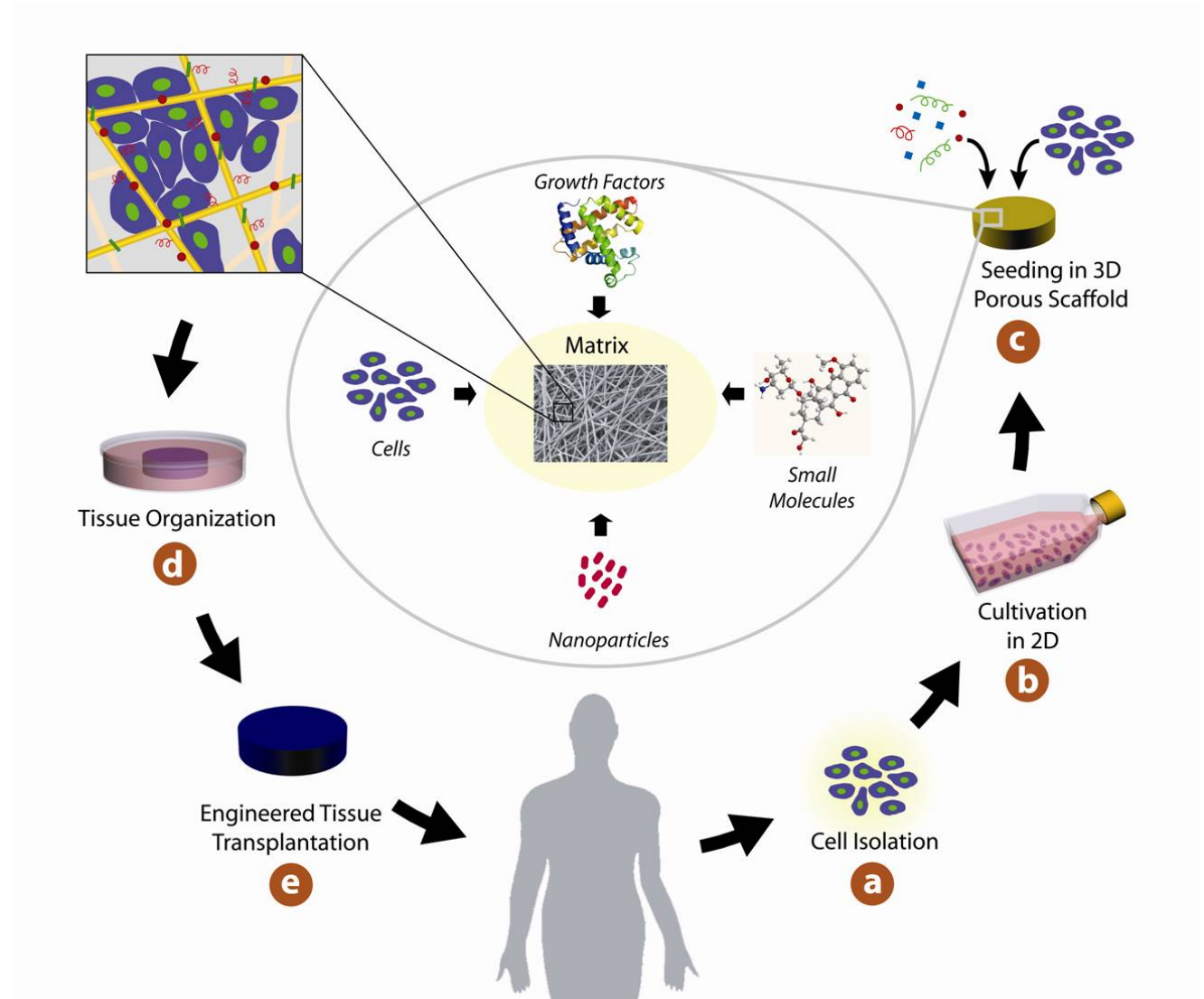
Classical pathway of tissue engineering

Plos:

- Amplification of cells
- Control over cell differentiation
- Control over implant properties

Cons:

- Shock for cells in the stages of pathway
- Selection of fastes growing cells
- Nonphysiological stimulation
- Poor implant integration with surrounding tissues



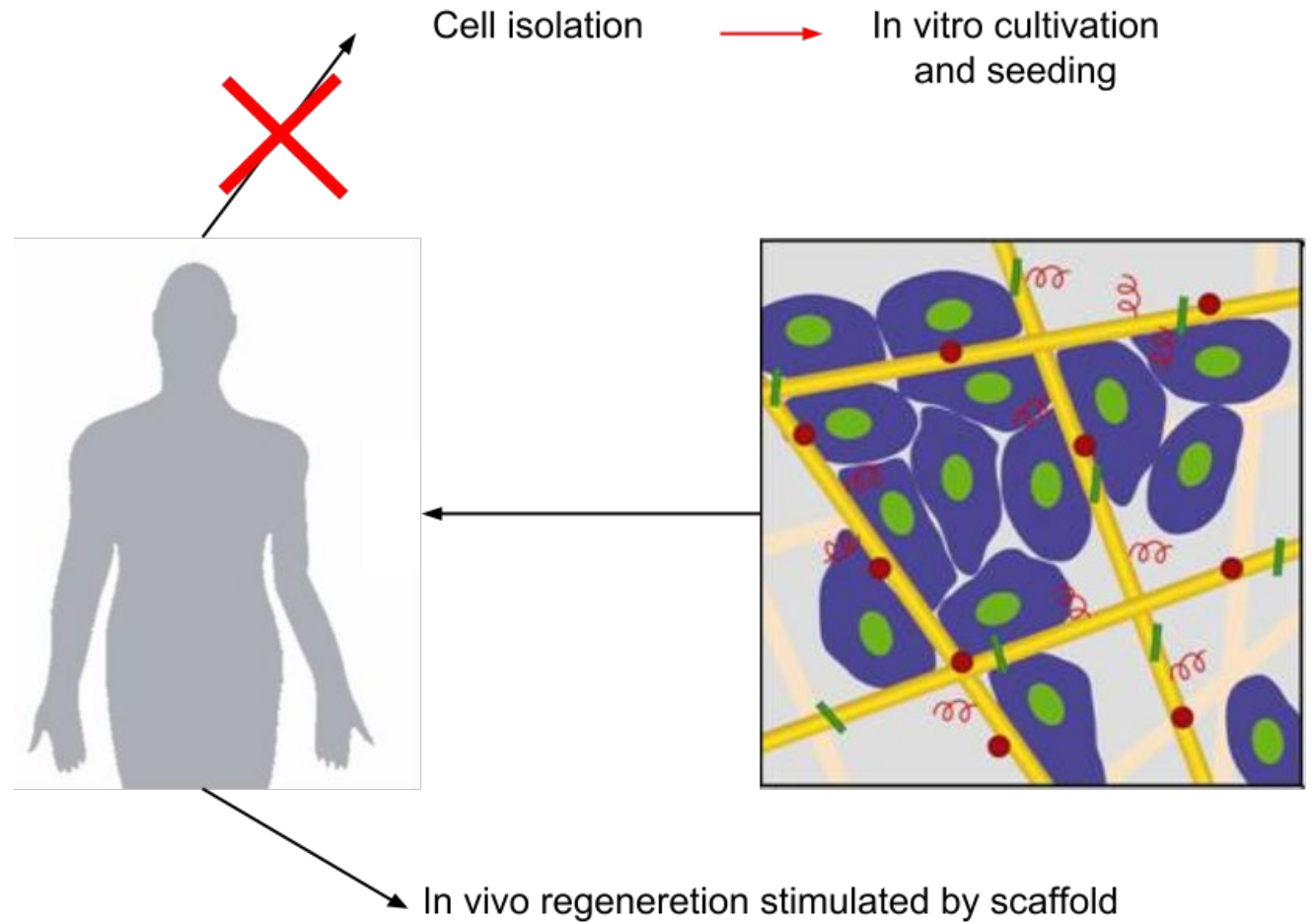
Cell-free pathway of tissue engineering

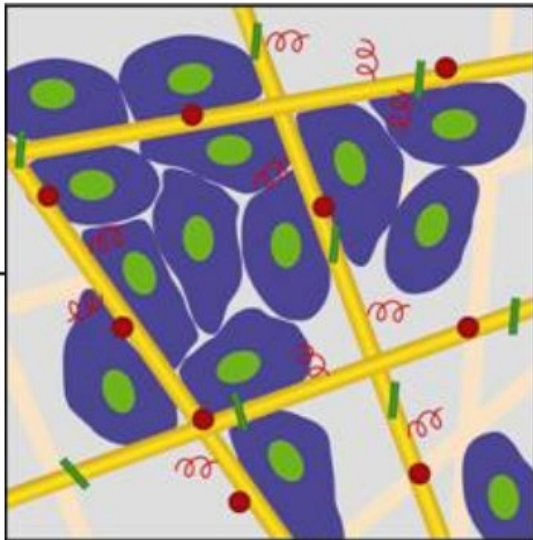
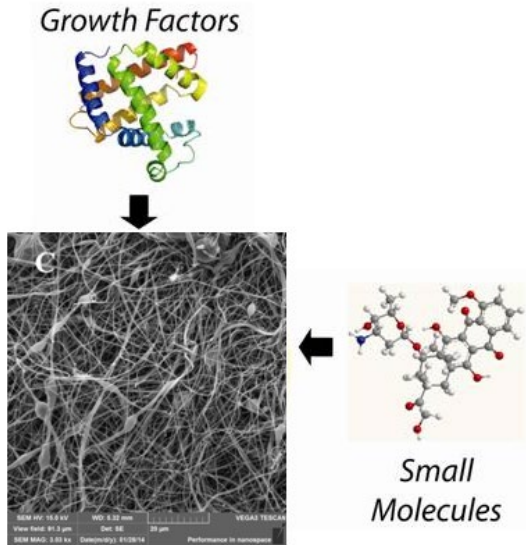
Pros:

- Limited danger of carcinogenesis
- Formation of complex tissues and better integration to surrounding tissues
- Mimicking of natural healing

Cons:

- Complex scaffolding materials



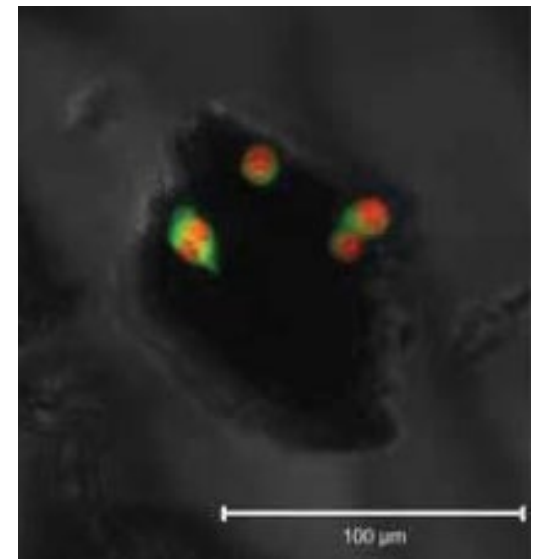
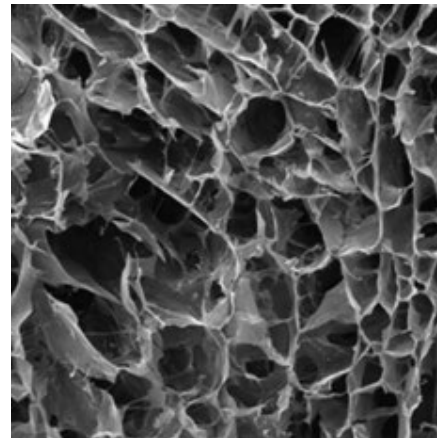
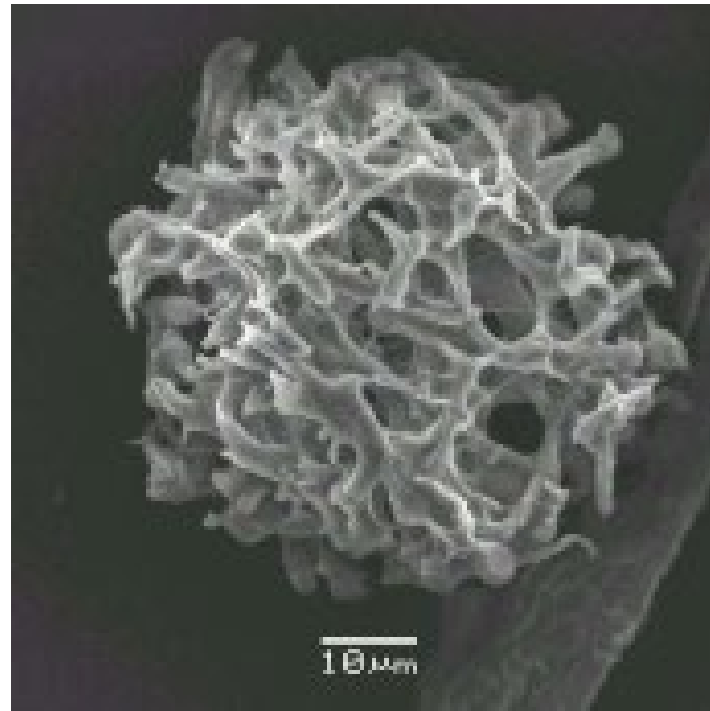


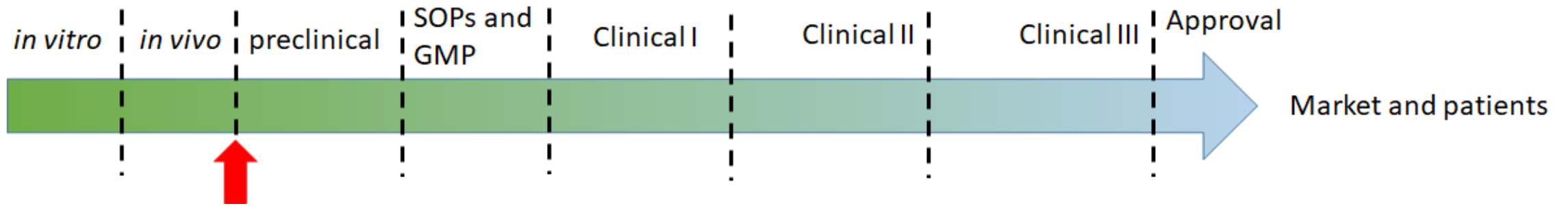
Advanced scaffolding systems

- For *in situ* regeneration advanced scaffolding systems are necessary
- Scaffold must have:
 - Suitable chemical composition for promotion of regeneration
 - Mechanical properties respecting properties of tissue
 - Delivery of active molecules for stimulation of regeneration process

Case study: development of cell- free bone scaffolds

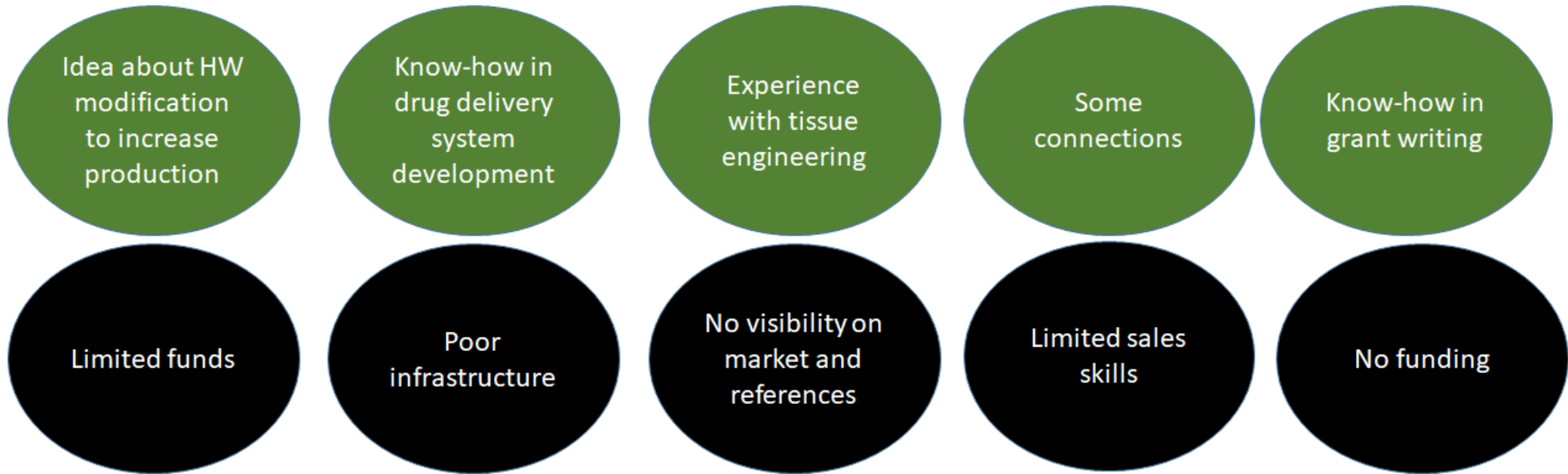
- Scaffold based on combination of nanofiber membrane derived microparticles
- Combined with foam scaffold
- Platelets were used as source of growth factors to foster regeneration
- *Prosecka et al., 2014, Prosecka et al. 2014 and Knotek et al. 2012*





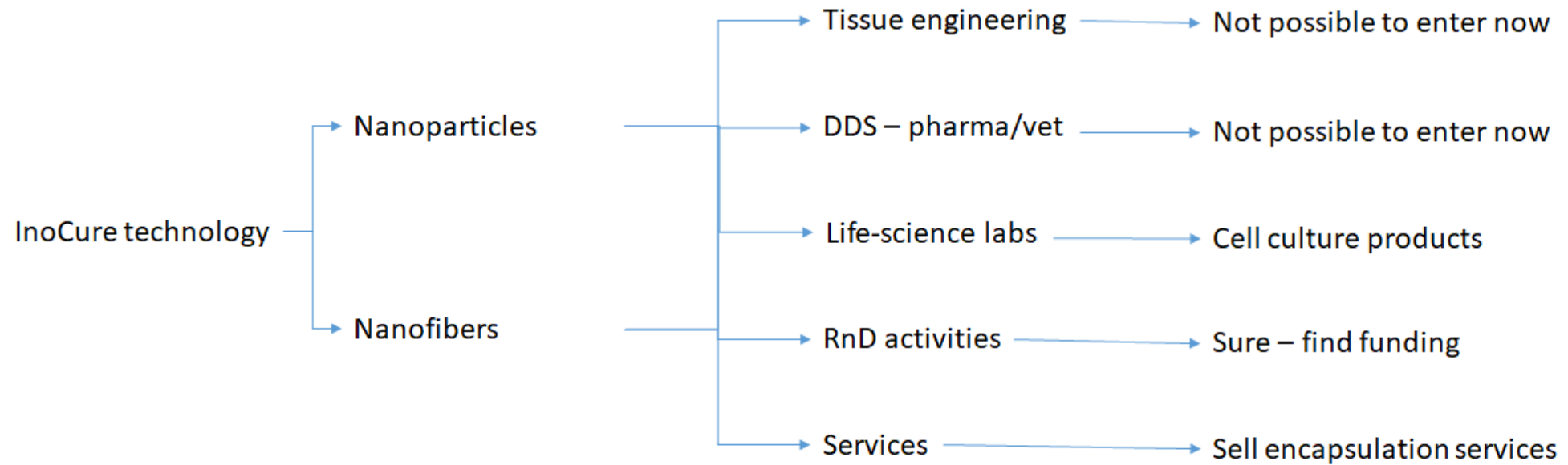
What`s next? Commercialization!

- Key barriers:
 - Regulatory organs (i.e. EMA) have only limited guidelines for the tissue engineering products
 - Feasibility evaluation: cost/benefit analysis, market analysis, GMP production.
 - Clinical trials
- In development of system is necessary to think about consequences from start – Quality-by-design



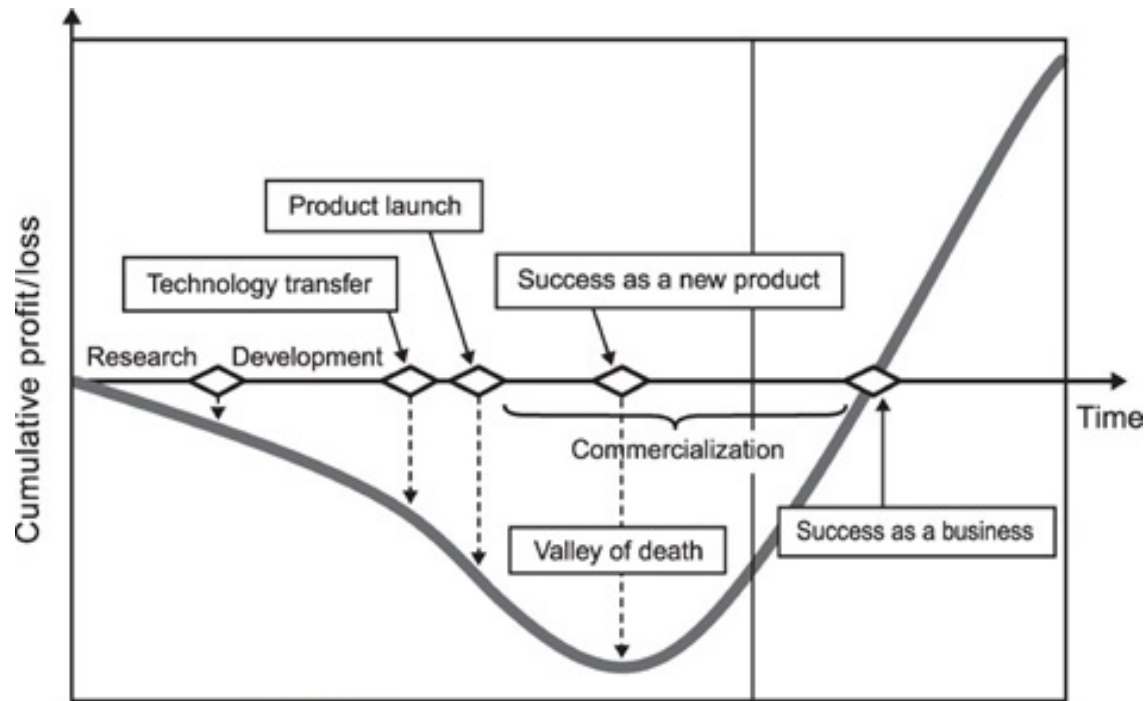
Commercialisation – our experience

- InoCure is start-up built in 2015
- Company is focused on development of advanced materials for life-science
- What was the idea: we would like to commercialize nanoparticle and nanofiber production based on our ideas.



First: Arrange your ideas into bussiness plan

- Make a strategy – what is the fastest product for market? How you can sell your know-how.
- Evaluate the product – it is really viable? What is the market? Are you really a feasible solution?
- Think about roadmap – necessary to know the following steps and evaluate what is needed to reach them
- Plan the budget – how long you will sustain with funds. What infrastructure you need? Prioritize!



Second: Execute the plan

- You need to be active. Founders need to sell it – communicate with people and be OPENED.
 - Try to network as much as possible – i.e. events through b2match.
 - If you want to cooperate even with No.1 in your field – contact him/her and be honest...
 - If possible engage someone with business experience

Investment

Business angels and VC funds.

Plos:

- Money helps you survive „the Valley of Death“
- Great for very focused solutions with proven efficacy.
- Necessary for solutions which need quick entering to market.

Cons:

- Idea is not sufficient to convince.
- You will loose a lot of control.
- Investors always look first on return of investment!

No investment

You need to make it on your own.

Plos:

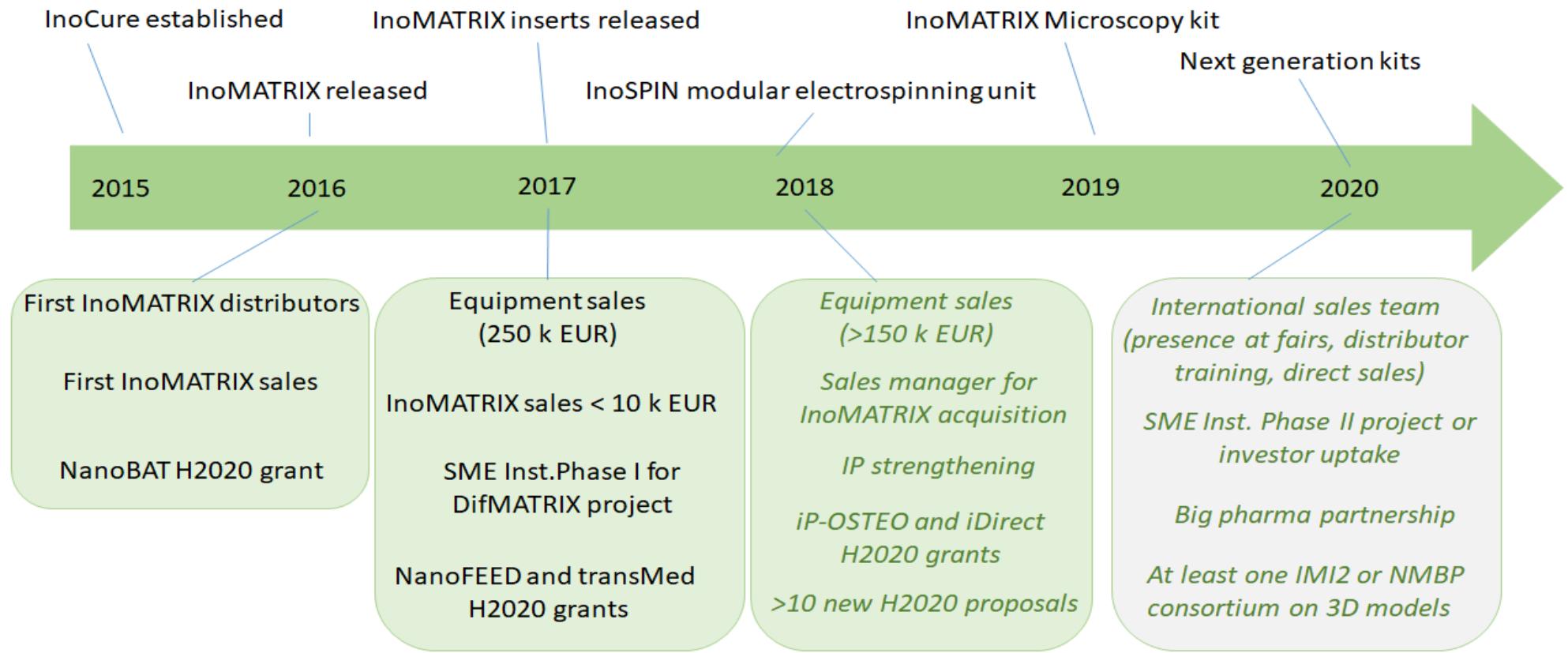
- Complete control of your business.
- You can perform more ambitious things.
- You will learn a lot...

Cons:

- Need to secure money – products, funding.
- Need to find products/services which you can offer right now.
- Takes longer time to finalize the product.

Investment: survive, grow and scale.

- You need to be active. Founders need to sell it – communicate with people and be OPENED.
 - Try to network as much as possible – i.e. events through b2match.
- If you want to cooperate even with No.1 in your field – contact him/her and be honest...
 - If possible engage someone with business experience



Our roadmap

- Shift from custom products to standardized product lines.
 - Shift from B2B to B2B2B (distributors)
 - Expansion from Europe to other regions
- Company has now 14 people – new challenges

InoMATRIX 3D cell culture systems



InoSPIN electrospinning device

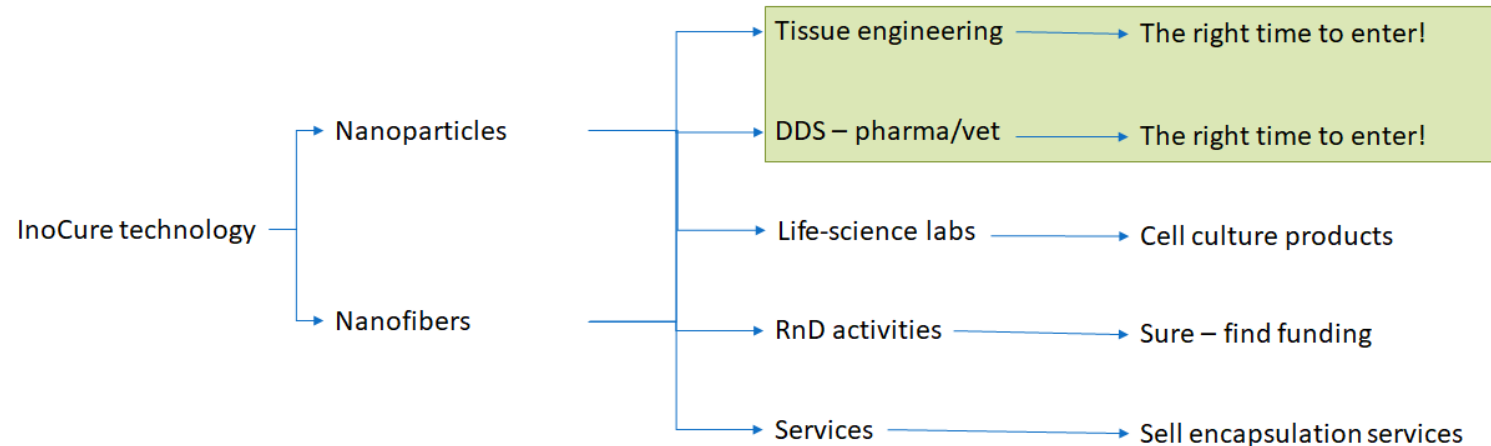


Our products

- Focus on 3D cell culture and nanofabrication markets
- The market is not Czech republic – strong focus on export.
 - Conservative customers need strong marketing.

How we go back to our main goal?

- Medtech/pharma market needs:
 - CONFIDENCE – validation of technology in life-science market/laboratories.
 - CONTACTS/BRANDING – pharma/medtech guys need to know you.
 - MONEY – pharma things are expensive





Good luck with your bright ideas!

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