

Edible vaccines

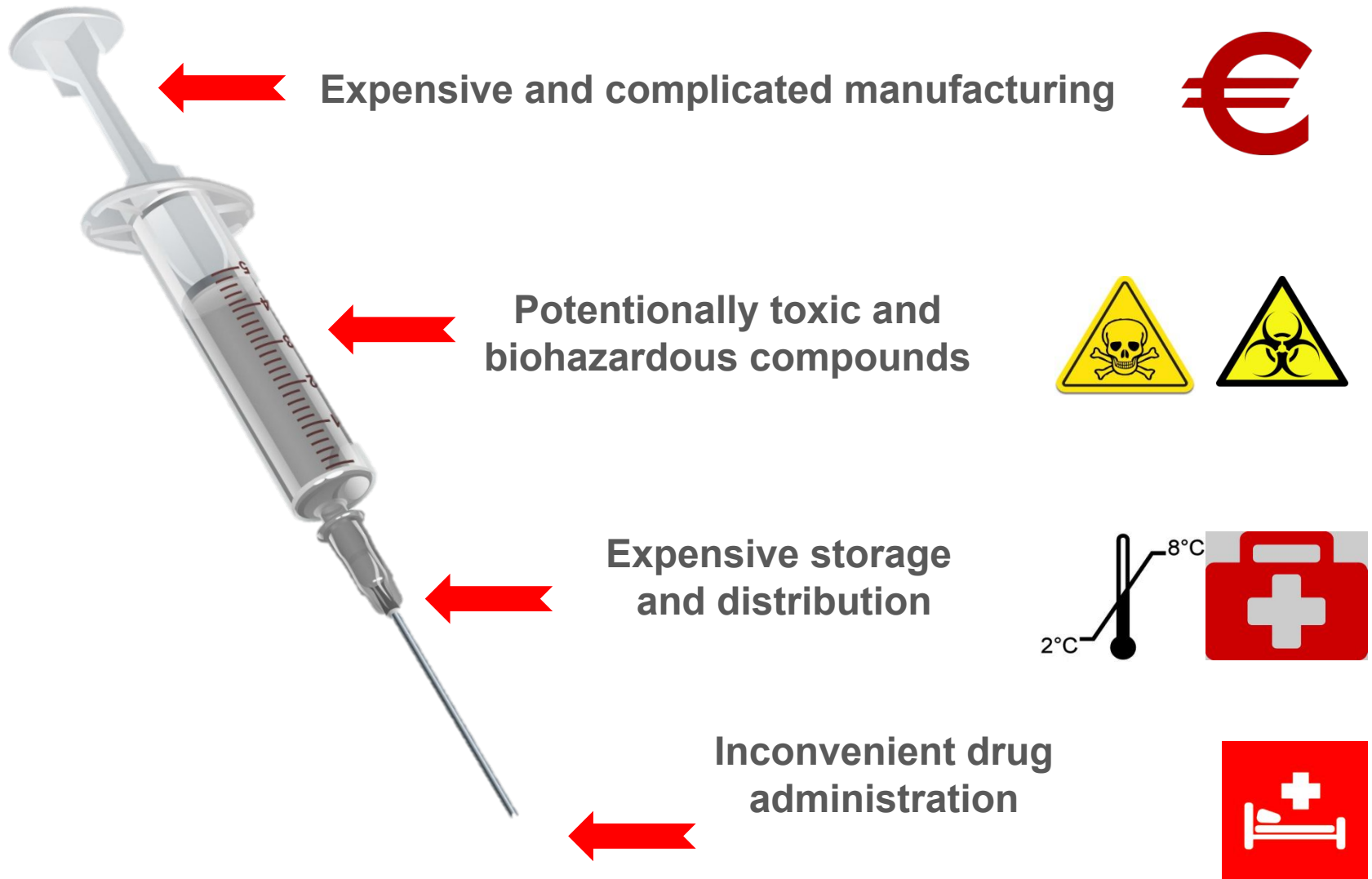
Maryna Korshevniuk

***We increase the
accessibility of
medical
compounds***

**Few leaves – a doze
of medicines**



Typical vaccines



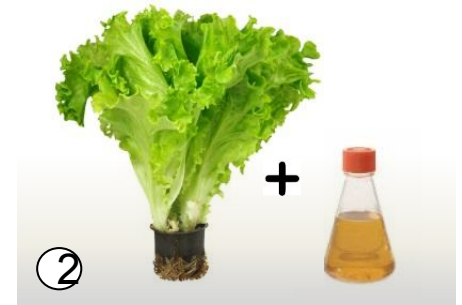
Principle

Human and animal obtains the dose of drug or immunization by eating transiently transformed salad in fresh form.

Efficiency of oral administration of this type of vaccine for number diseases had been proven.



Growing non GM plants



Agrobacterium-mediated transient transformation



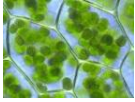
Sustaining in right conditions for target product accumulation



Harvesting and eating



Advantages



Drug bioencapsulation – ready to use



Easy to scale the production



Rapid response production



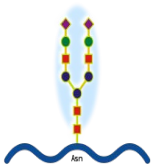
No animal products and their pathogens



Manufacture different types of product in a single facility



Much more cheaper than using other expression systems (about **0.1%** of mammalian cell cultures)



Post-translational glycosylation of target proteins (instead bacterial expression system)



Difficulties



Bioequivalence
estimation



Biosafety issues
examination



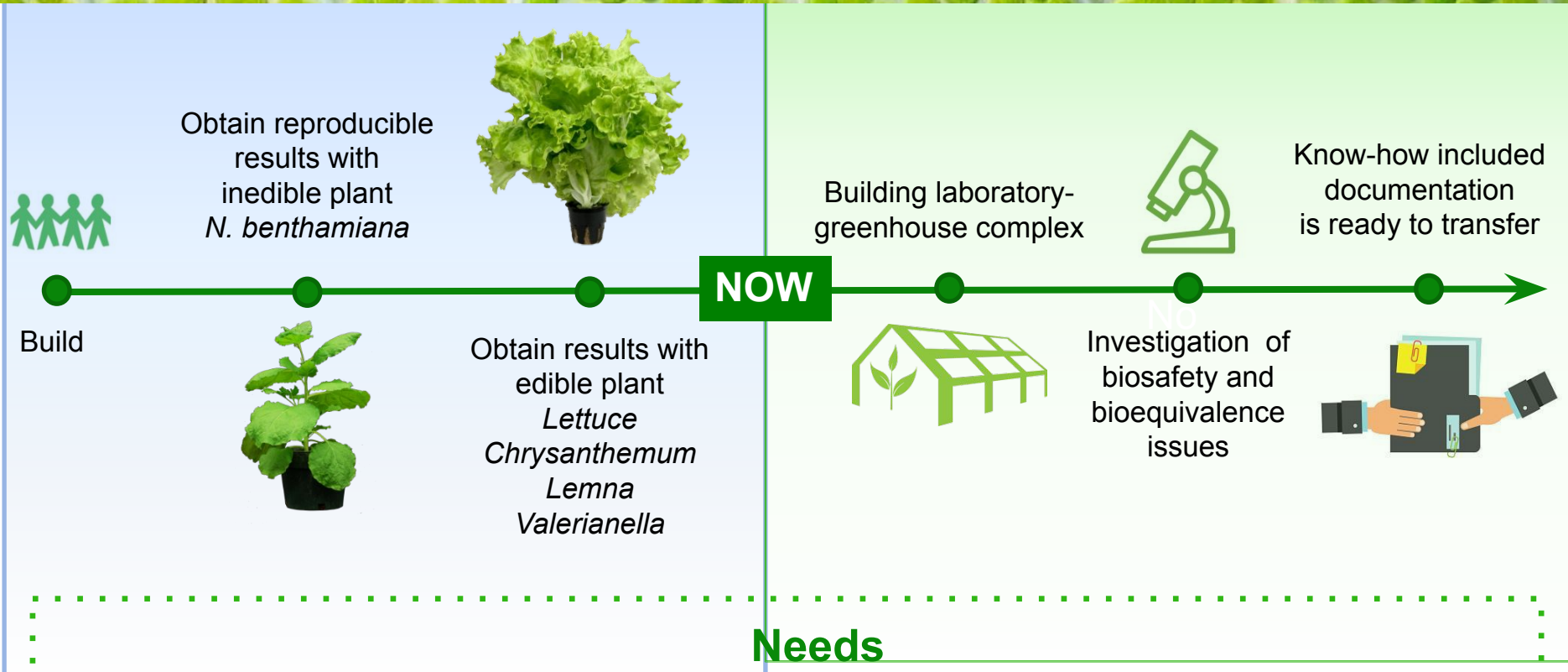
Efficiency of oral
administration



Difficulties with
accumulation
level control and
normalizing



Plan

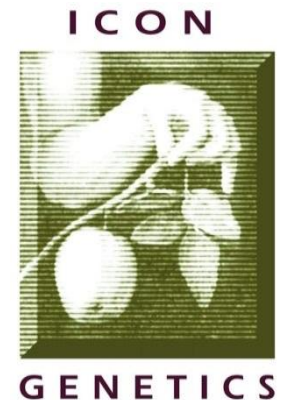


- Investments for building laboratory-greenhouse complex
- Collaboration with other institutes for further investigation of bioequivalence, biosafety issues, and efficiency of oral administration

Example

Icon Genetics

- spent over **€80 M** in R&D (2006-2011)
- raised over **€26 M** (VC, grants, successful exit)
- **€55 M** acquisition by **Bayer** the part of Icon Genetics (2006)
- the second part has been acquired by **Nomad Bioscience** (2011).
- **€75 M** acquisition by **DENKI** (2015)
- own GMP-manufacturing unit



Team members



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