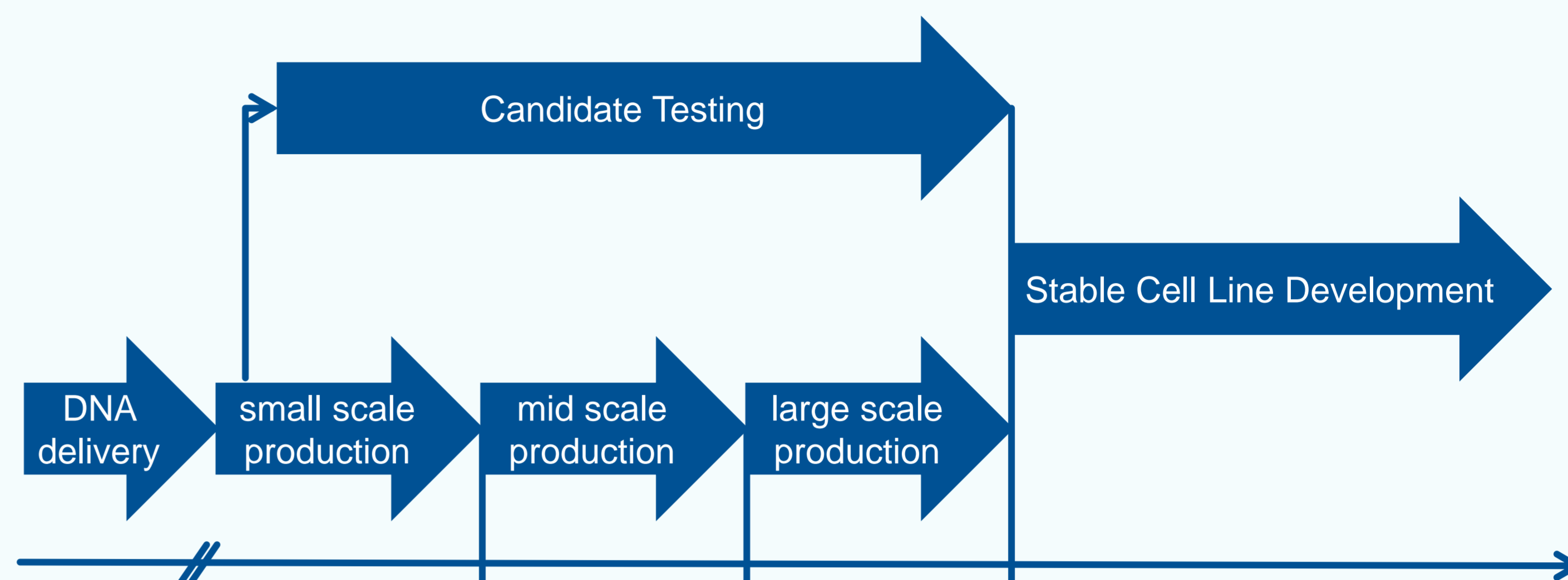
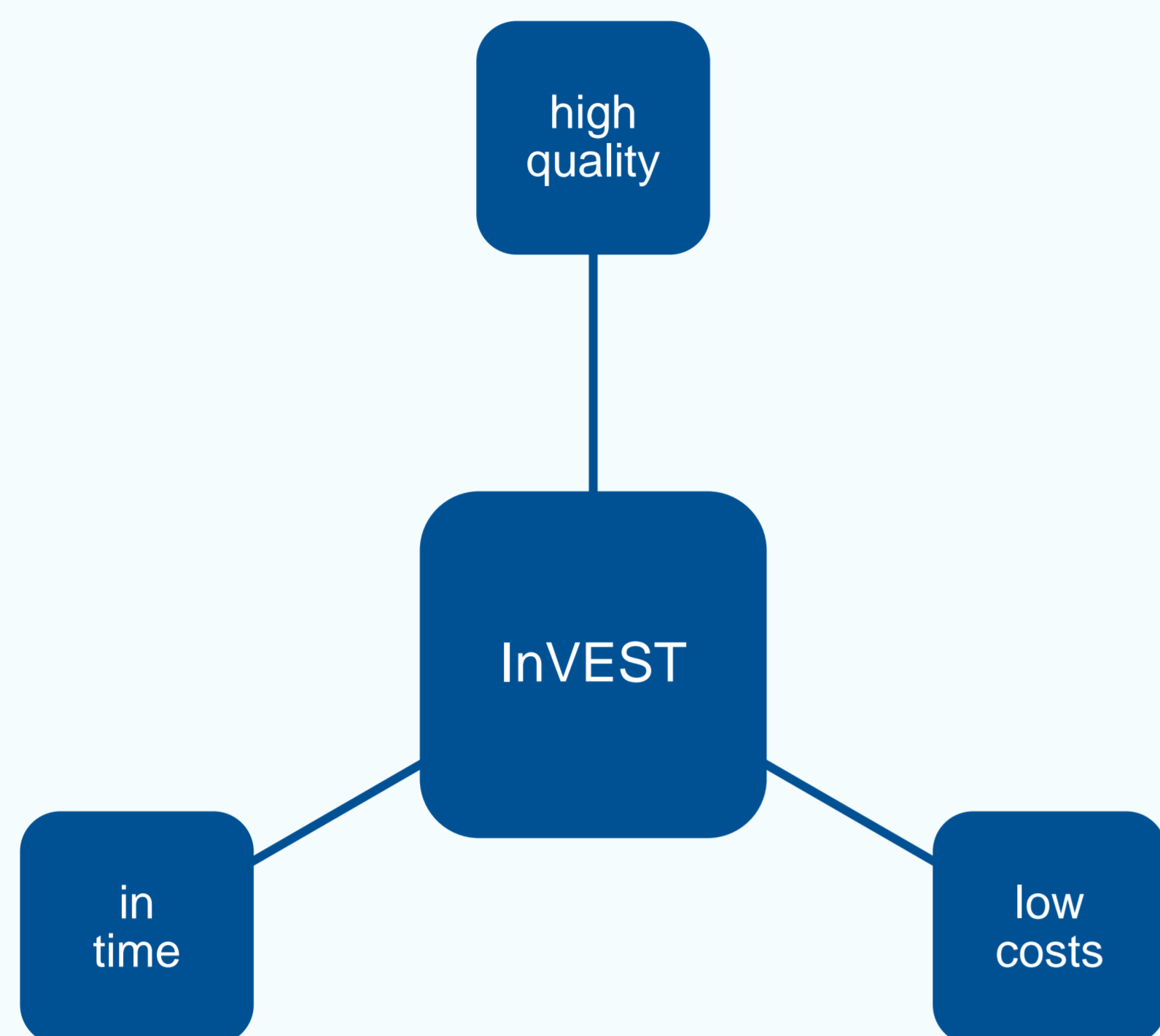


During the last decades conventional treatment of complex diseases yields personalized medicine and biotherapeutics with persuasive clinical results and increasing approvals. Among monoclonal antibodies and enzymes innovative protein formats as fusion proteins or bispecific antibodies fill drug candidate pipelines. However, most candidates fail during pre-clinical development occasionally because of non-expressibility in mammalian cells, cost and time pressure, increasing regulatory requirements or disappointing results. Non-GMP transient gene expression is the method of choice to produce hundreds or

thousands of molecules in a cost-efficient way before starting expensive and time-consuming stable cell line development. InVivo's Expression System for transient Transfection (InVEST) is a state of the art expression platform meeting the demands of early and late stage drug discovery and development approaches. The platform allows the development of up to 240 candidates in small scale expressions (à 15 mL), up to 70 mid scale expressions (à 750 mL) or up to 6 large scale expressions (à 9 L) in less than 6 weeks after DNA delivery.

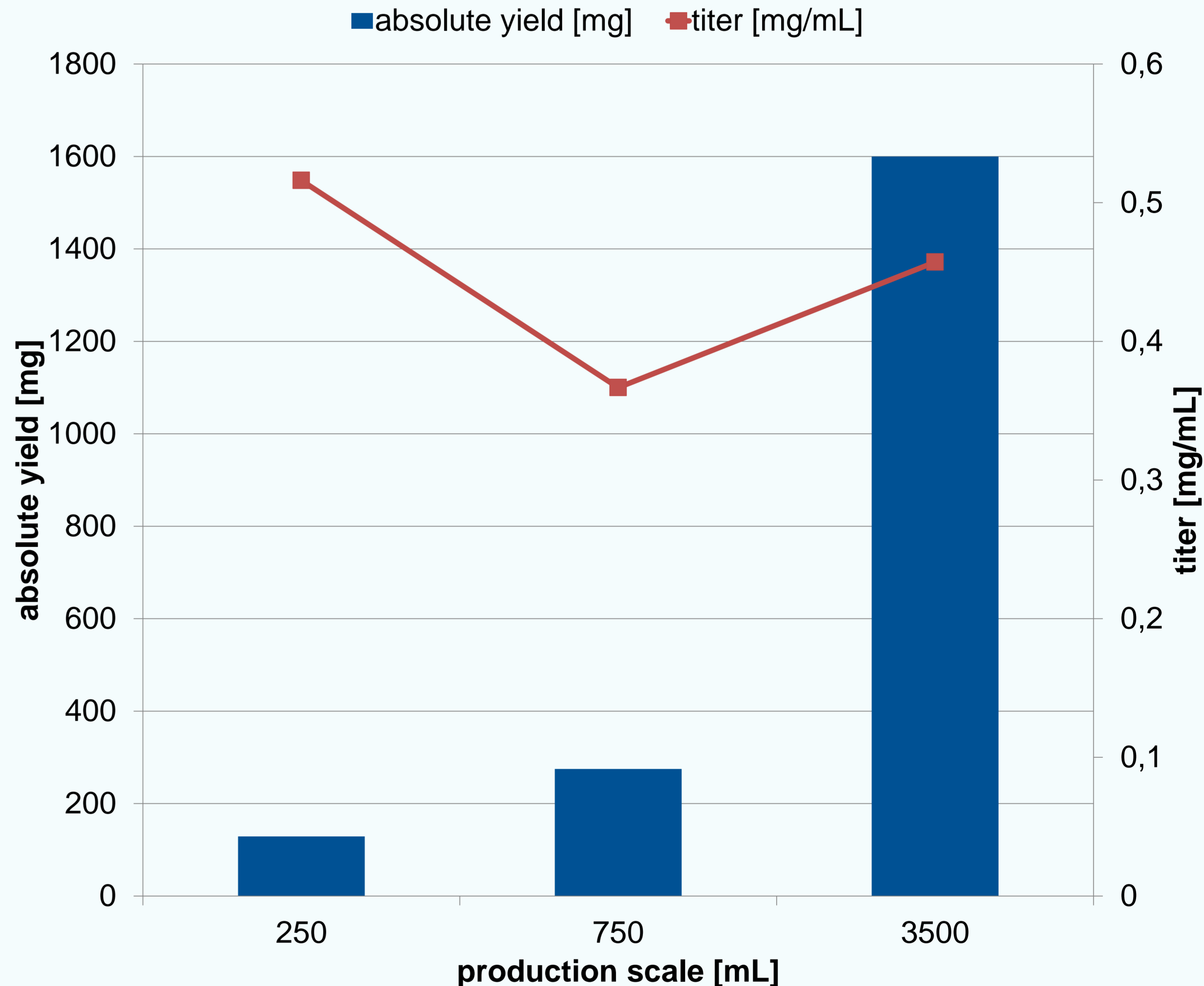
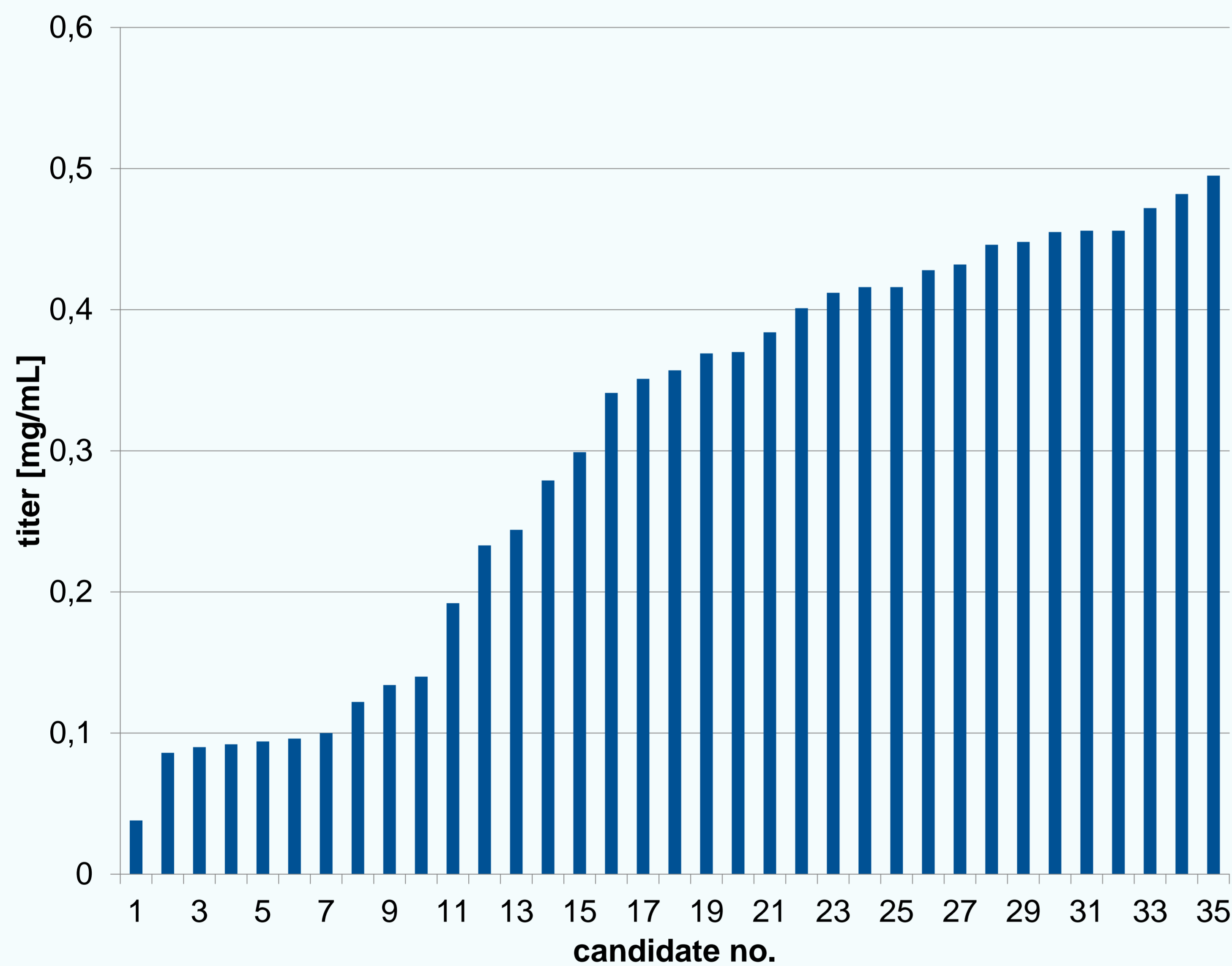
Process Overview



After disclosure of GOI information we start with sequence design and external gene synthesis. Subsequently, cloning in our proprietary transient gene expression vector and plasmid preparation follow. Based on prioritization we start with the first panel of candidates resulting in first material supply one week after transfection for determination of physico-chemical parameters and kinetics. InVEST typical leads to expression levels between 100 – 600 mg/L for recombinant antibodies without any further optimization and appropriate post-translational modifications.

Top candidates can be transferred to mid scale expressions for further lead characterization e.g. *in vitro* and cell-based assays. Large-scale expressions ensure supply of preclinical material form fewer candidates for larger studies. Additionally, at each time favored candidates can be transferred to InVivo's Cell Line Development Platform. The InVivo approach reduces timelines, costs and manufacturing issues, ensures lean and straight forward decision-making at highest quality and is fully customizable to your requirements.

Case study data



The following project elucidates the scope and efficiency of InVEST. After receiving sequence information 35 candidates were expressed within one month at a 250 mL scale. Candidates were divided into expression groups according to prioritization by the customer while each group was set as checkpoint for going forward. Required plasmid DNA was produced just-in-time using InVivo's proprietary plasmid preparation system.

The top candidate was expressed in three scales (250 mL, 750 mL and 3500 mL) leading to yields ranging from 0.35 to 0.5 mg/mL final product concentration. However, using InVEST more than 2 g pre-clinical material of the lead candidate was delivered for determination of physico-chemical parameters and kinetics, *in vitro* and cell-based assays and further studies.

InVEST opens possibilities for...

- generating up to 240 candidates in small scale expressions for determination of physico-chemical parameters and kinetics
- generating up to 70 mid scale expressions *in vitro* and cell-based assays
 - generating up to 6 large scale expressions for extensive studies
- simple transfer to InVivo's Cell Line Development Platform for commercial production
- expression levels between 100 – 600 mg/L for recombinant antibodies
 - reducing timelines, costs and manufacturing issues
 - lean and straight forward decision-making
 - full customization to your requirements
 - royalty-free protein expression