Session	Emerging innovative technologies: novel fermentation and novel downstream processing innovations
Title	proteolutions - optimized DNA sequences for higher protein yields
Company	proteolutions
Speaker	Gert Weber
TRL	TRL 4 - 7
Keywords feedstock (max 2)	Any feedstock
Keywords technology (max 2)	Ccodon optimization
Keywords End-Product (max 2)	Recombinant protein

Abstract:

Heterologous protein expression is a cornerstone of biotechnology - from recombinant therapeutics to industrial enzymes, every product originating from a gene encoded on DNA. Due to the redundancy of the genetic code (61 codons represent 20 amino acids) and species-dependent codon usage, a gene must be codon-optimized for a heterologous host to maximize protein yield. While conventional gene optimization methods treat each codon in isolation, our codon connectivity algorithm (WO 2024/018050) instead optimizes consecutive codon triplets, avoids detrimental sequences and yields 2- to 35-fold more soluble protein than competing technologies. proteolutions-optimized genes seamlessly integrate and add value to established protein production processes or unlock the full potential of AI-driven protein design. We supply optimized genes under a service and licensing model and work with partners who produce proteins or enzymes at scale. Introducing a global gene optimization concept, we envision our technology as a paradigm shift in biotechnology.