

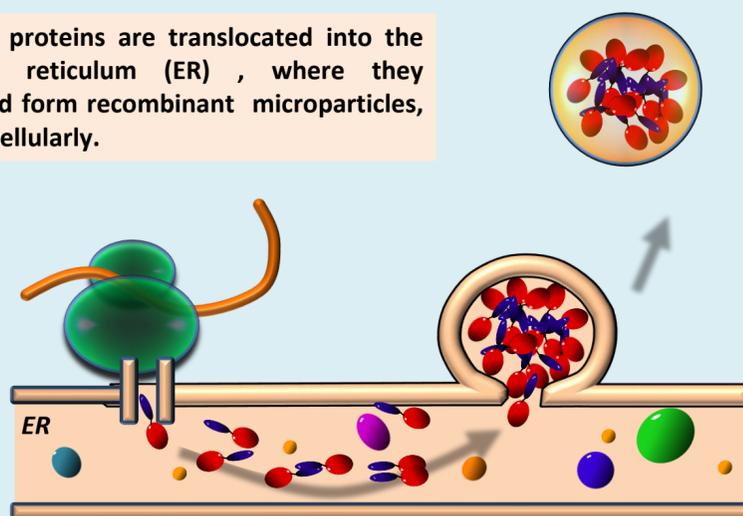
ZERA – Self-assembling peptide to increase protein expression and stability

ZERA is a family of **self-assembling peptides** which determines the assembly of properly folded recombinant proteins in the form of Microparticles (MPs), intracellular protein bodies like structures, made up of assembled oligomers of properly folded proteins.

Proteins in fusion with ZERA are accumulated at high levels, *in vivo*, and are highly resistant to proteases.

ZERA can be applied for the production of any **recombinant proteins**, for the **immobilization of enzymes** and for the development of **highly immunogenic vaccines**.

ZERA fusion proteins are translocated into the endoplasmic reticulum (ER), where they assemble and form recombinant microparticles, stored intracellularly.

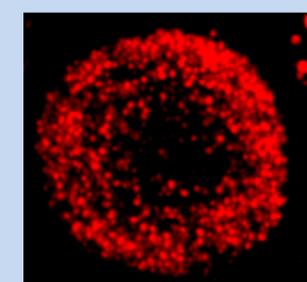


ZERA Microparticles (MPs), are formed in the endoplasmic reticulum of the production host. The formation of MPs is driven, *in vivo*, by ZERA, in fusion with the protein of interest.

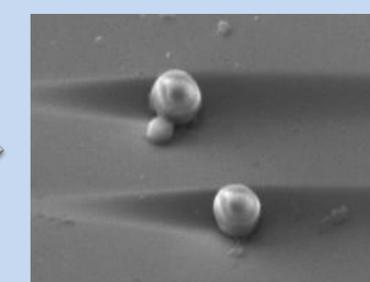
ZERA MPs show high resistance to protease degradation and are accumulated at high levels.

Main characteristics:

- **High accumulation levels** of active recombinant proteins (from 2- to 10-fold higher than control) in form of Microparticles (MPs)
- **Broad size range** of protein of interest (from few aa up to >100kDa)
- **Suitable for very diverse proteins** (e.g. enzymes, antigens, hormones), and for labile and/or difficult-to-express proteins
- Highly stable MPs, **do not require cold chain**
- Simplification and **universality of downstream** processes
- **Strong IP protection** based on 6 fully owned patent families



Sf9 insect cells



Scanning microscopy:
Isolated Zera MPs

ZERA MPs are **easily purified**, taking advantage of their high density, through a **universal downstream** processing, either based on centrifugation or filtration.

Depending upon the final application, ZERA MPs can be used as such (e.g. immobilized enzymes, vaccines) or may undergo further processing, in order to cleave the protein of interest from the MPs (e.g. production of difficult-to-express antigens).