Göran Conradson, VD

From liquid to powder

New products

New markets

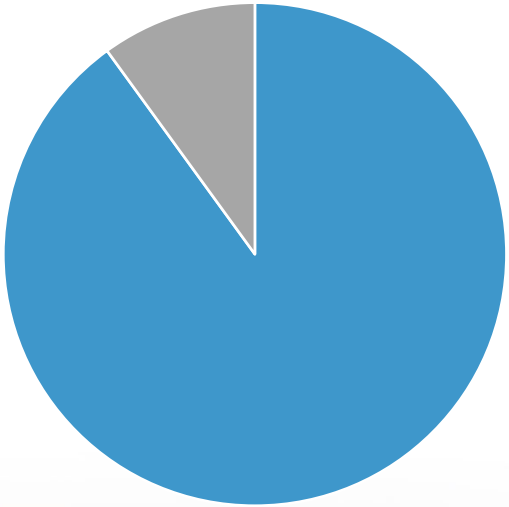
New IP

The Challenge

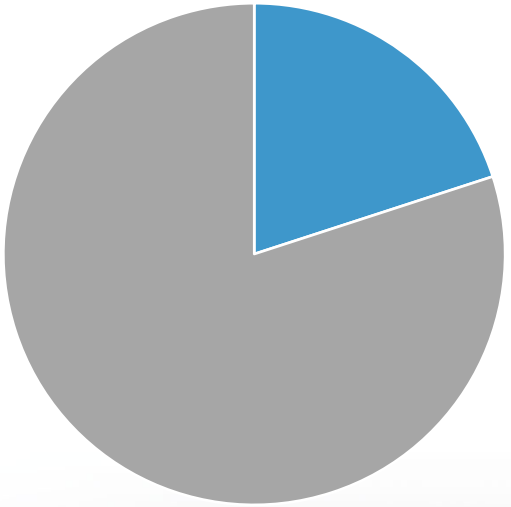
1 example of 20 000

Dry vs Liquid

Traditional pharmaceuticals

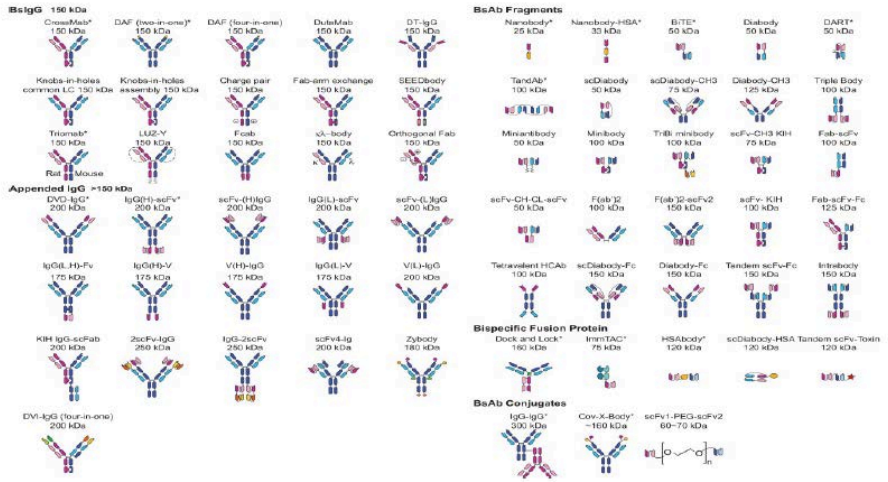


Biological pharmaceuticals

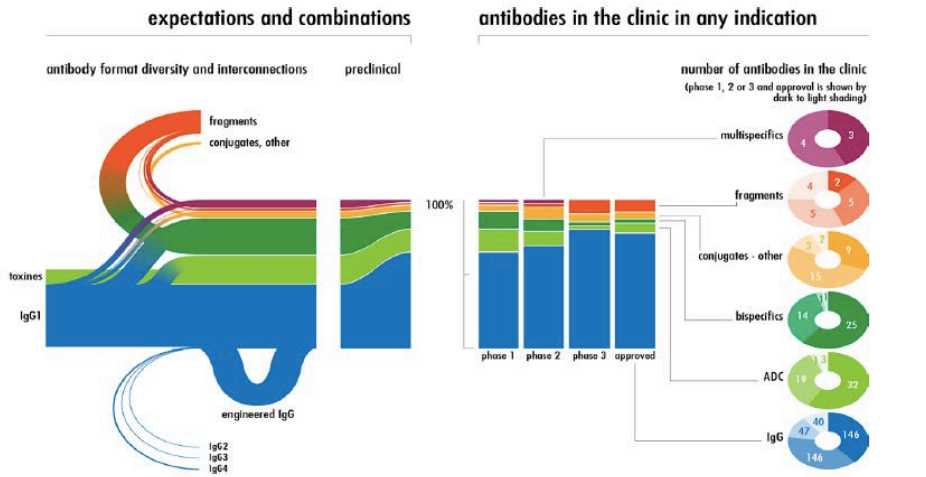


Monoclonal – New biologics

Many bispecific format choices



Formats in the clinic



New formats may be very instable

Source: *Antibodysociety.com*

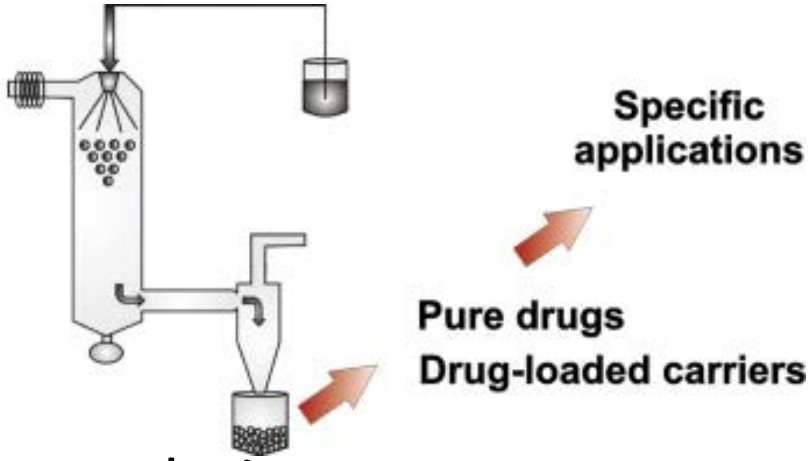
Vaccines – New markets

"The availability of new technologies provides the opportunity to innovate"

Bild är från WHO's Global Vaccine Action Plan, 2013

Very costly and challenging
to keep the cold chain unbroken!

Traditional drying techniques



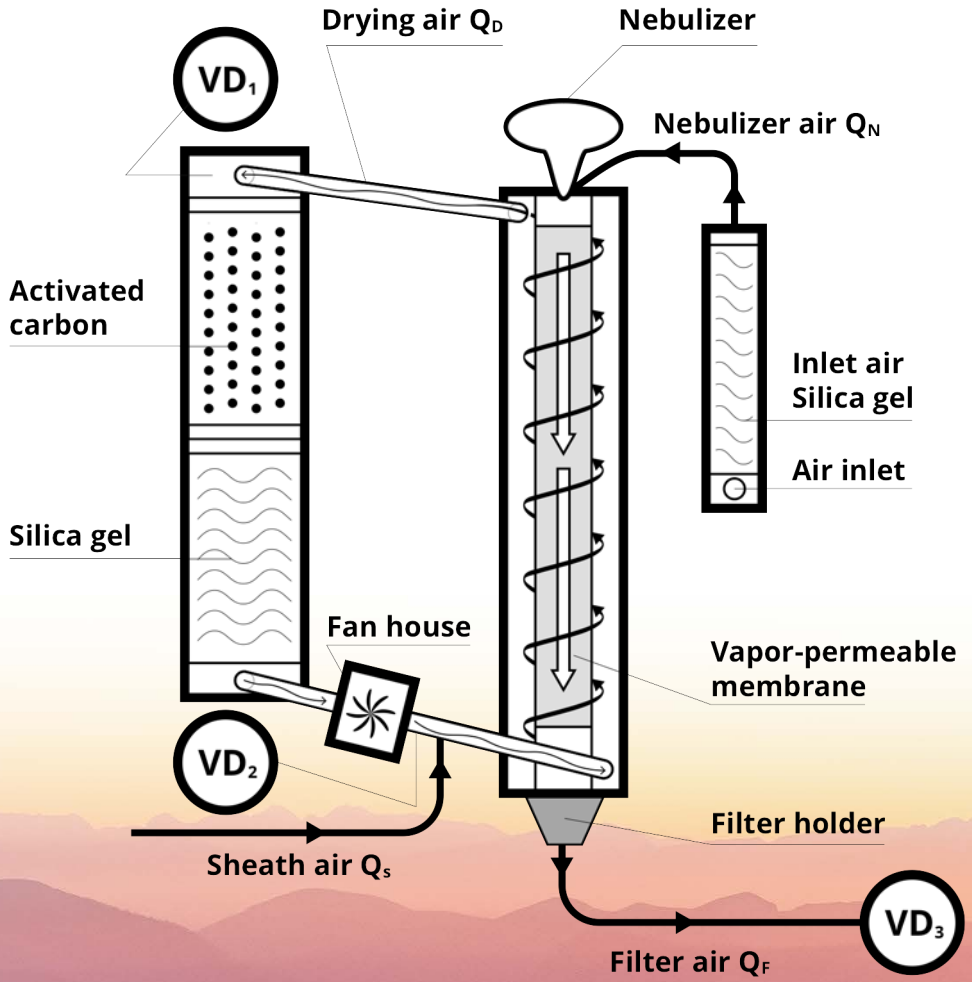
Lyophilization

- -80 °C 2-4 days
- Regarded as very expensive
- 5% energy efficiency

Spray-drying

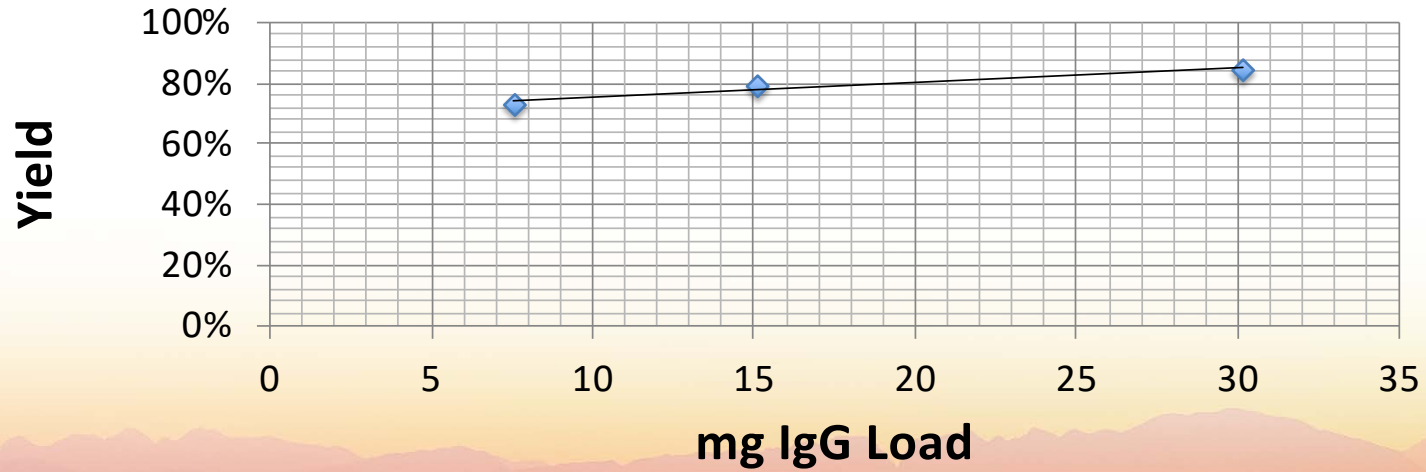
- +80 °C in cyclone
- +120 °C in nozzle
- Fast and scalable

The core technology – what is unique?

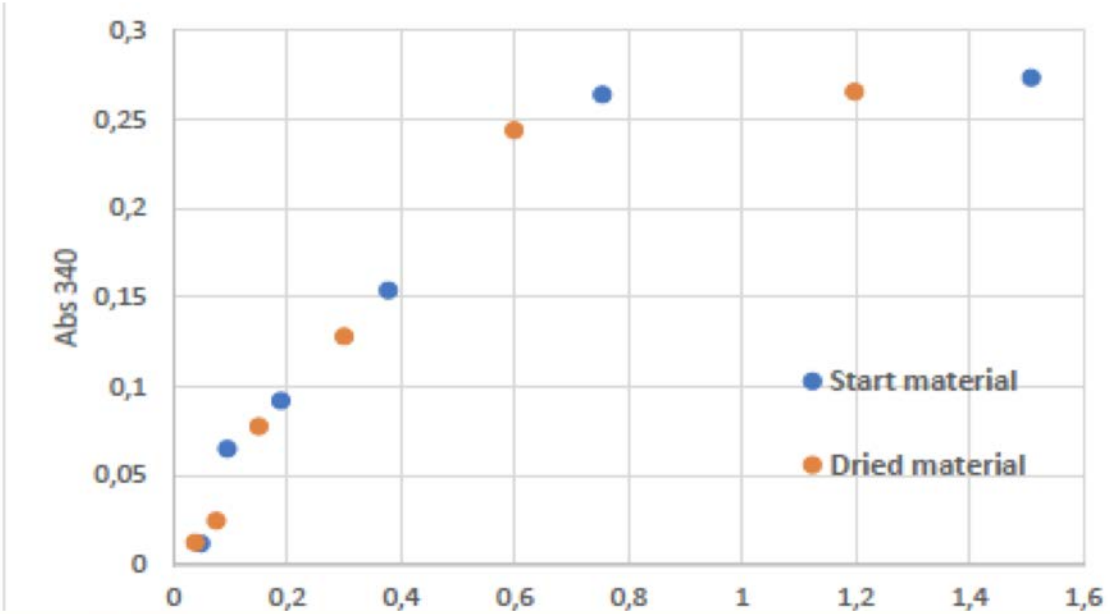


IgG drying – Rabbit Polyclonal C3c

	Volume	Recovered	Yield
Run 1	0,5 mL	5,52 mg IgG	73,2 %
Run 2	1 mL	11,98 mg IgG	79,4 %
Run 3	2 mL	25,54 mg IgG	84,7 %

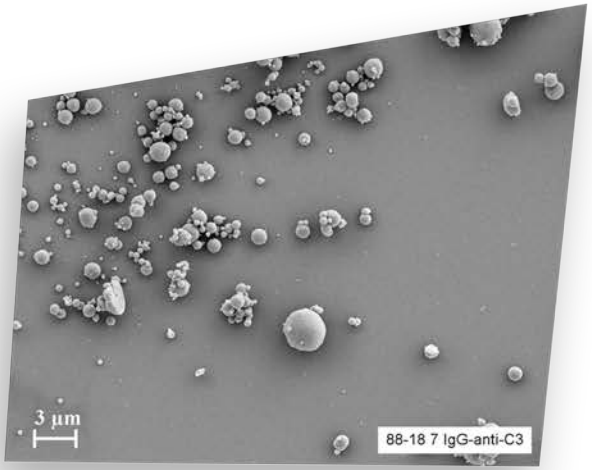


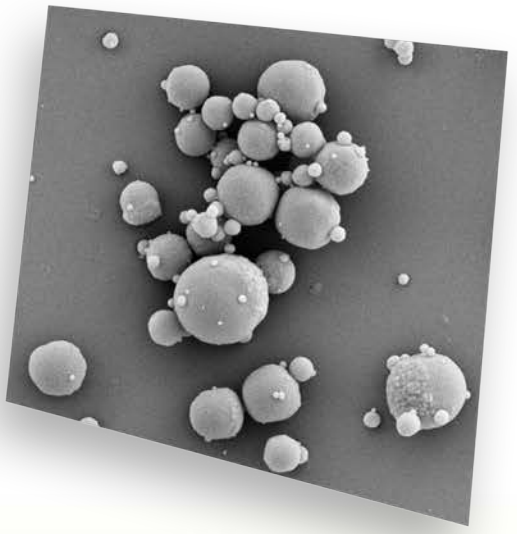
IgG drying – Rabbit Polyclonal C3c



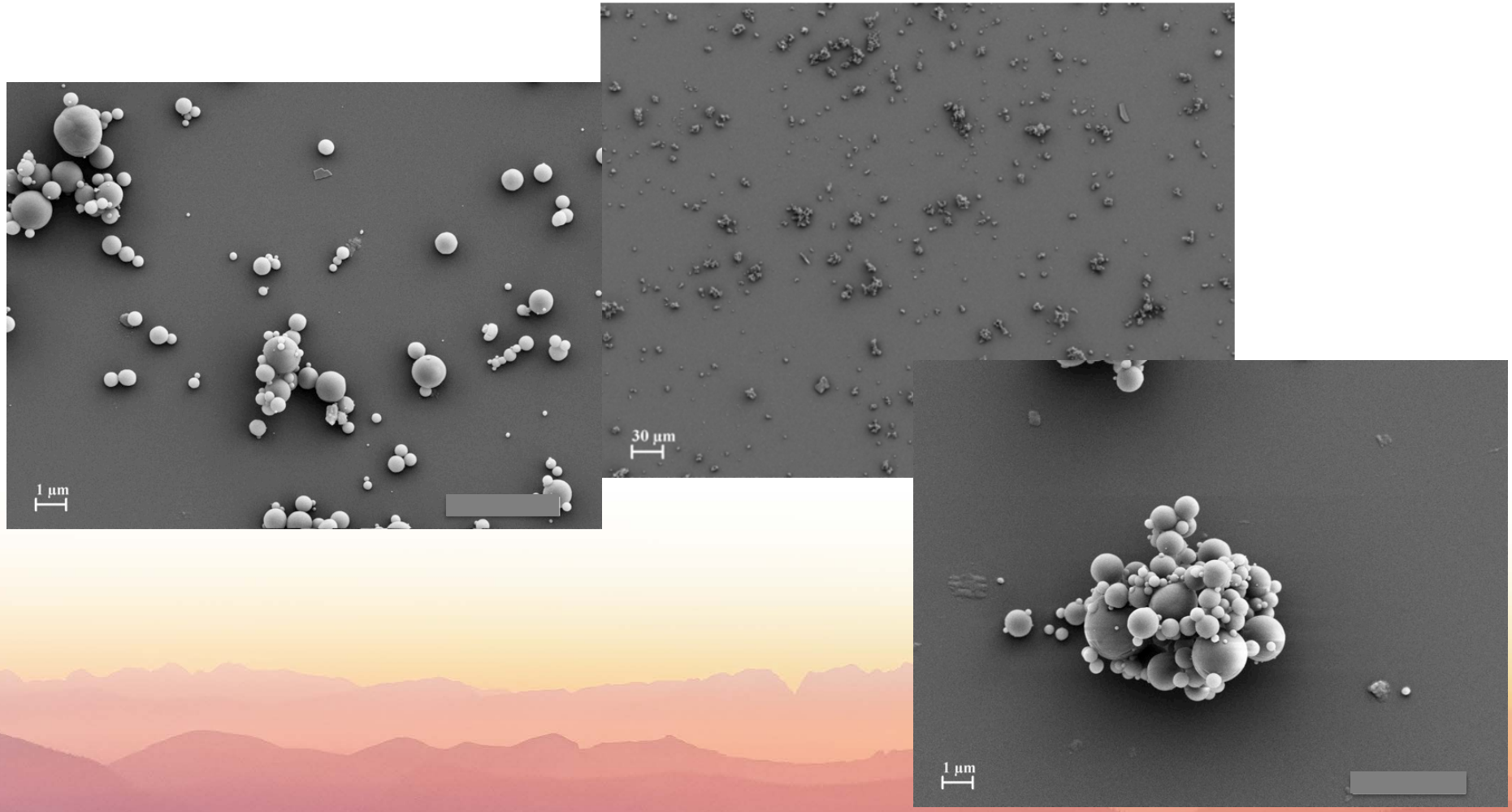
Activity measurement: Turbidimetric assay

The results!

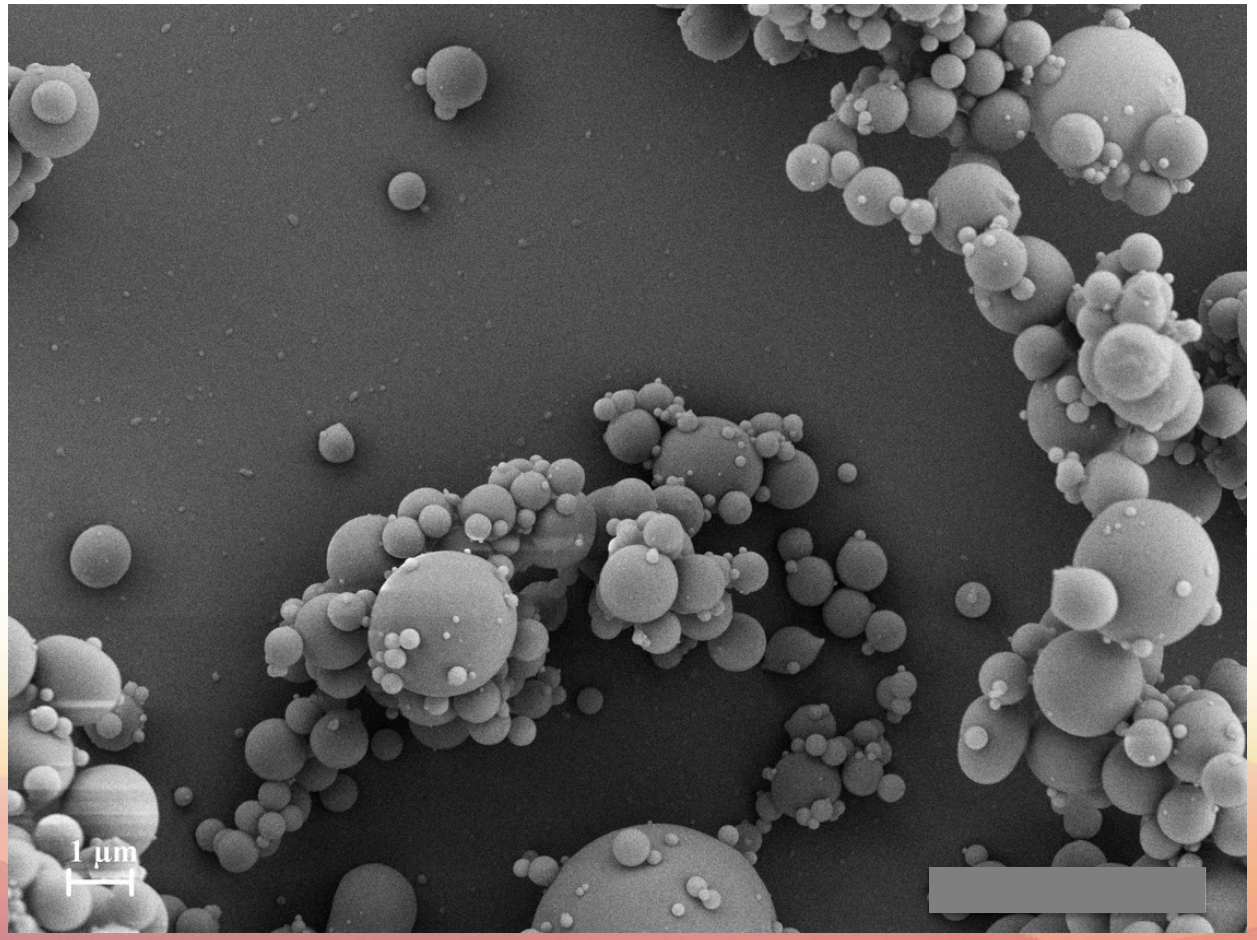




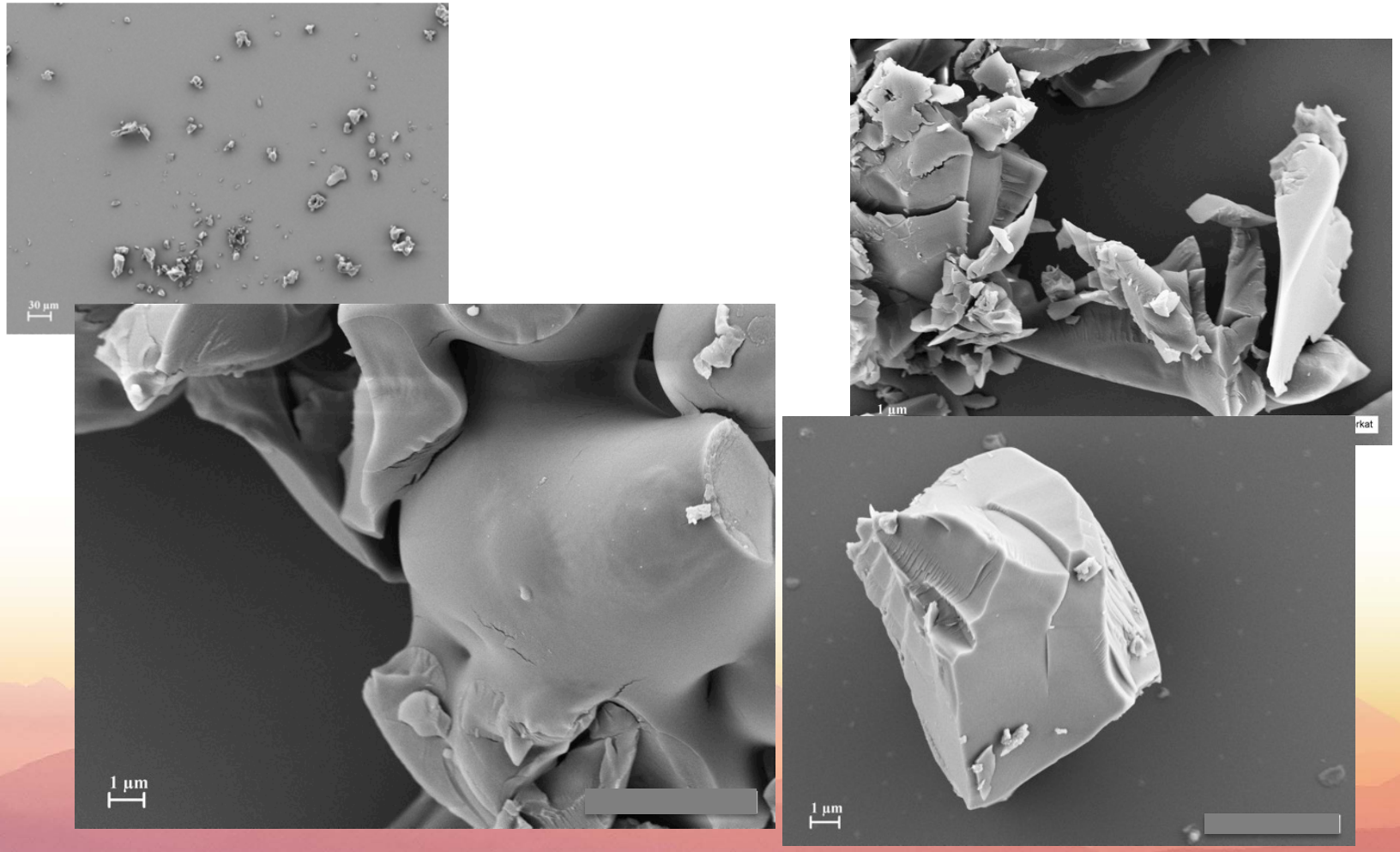
Protein drying
0,33% P 4-6 µm mesh



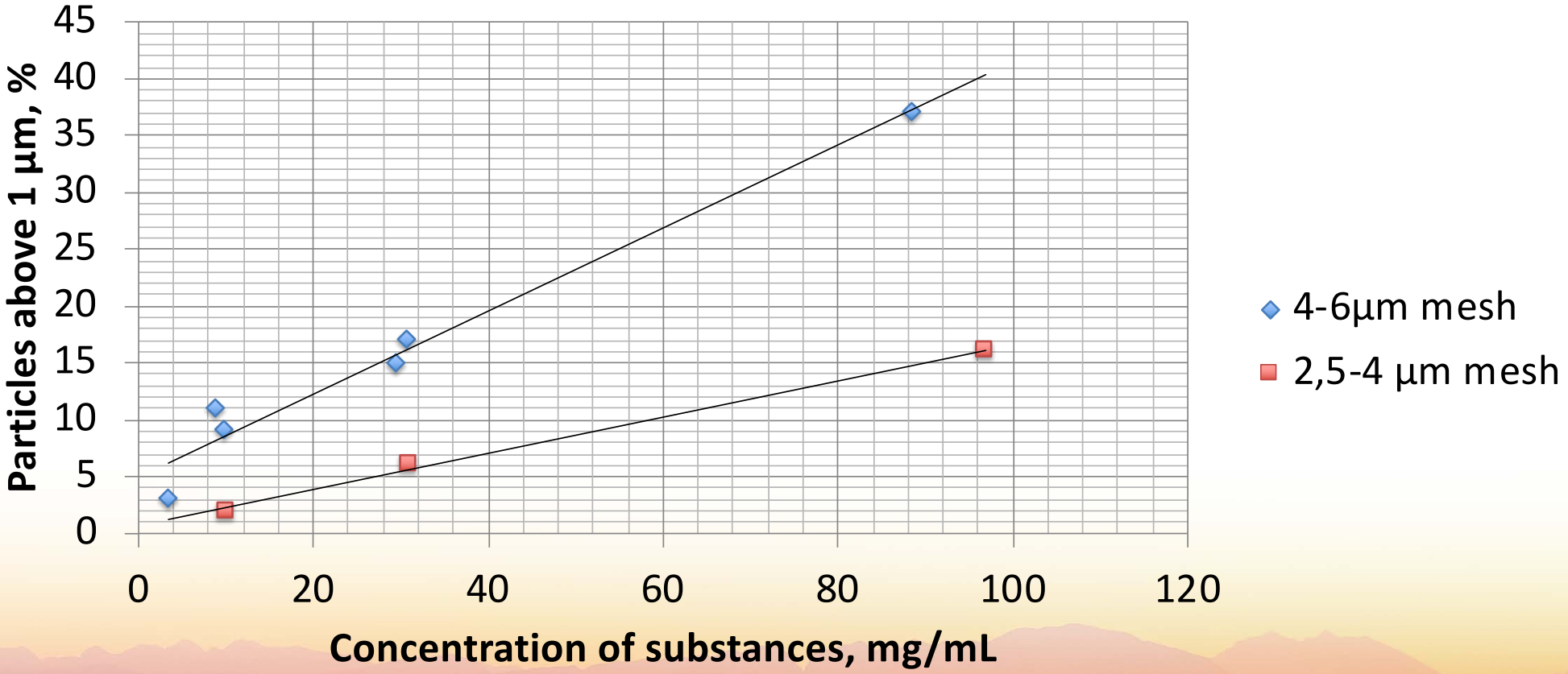
Protein drying
3% P 2,5 - 4 µm mesh



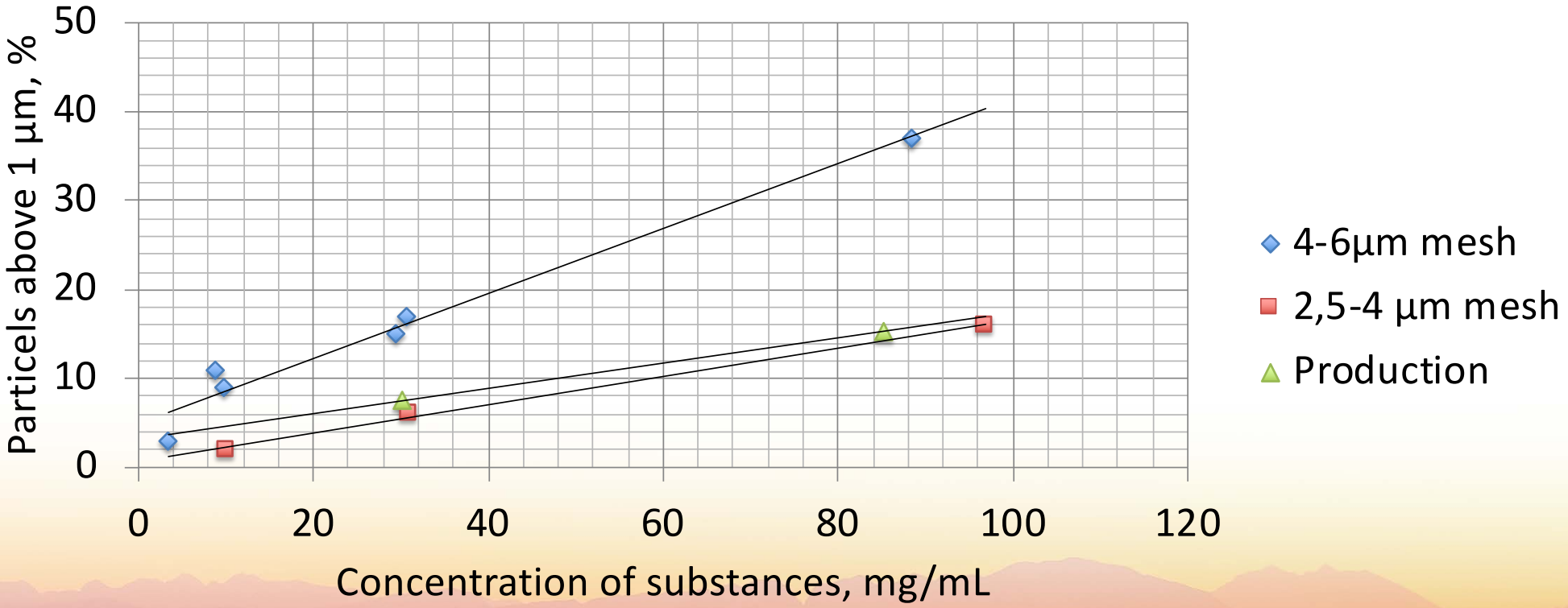
Protein drying
Lyophilisation



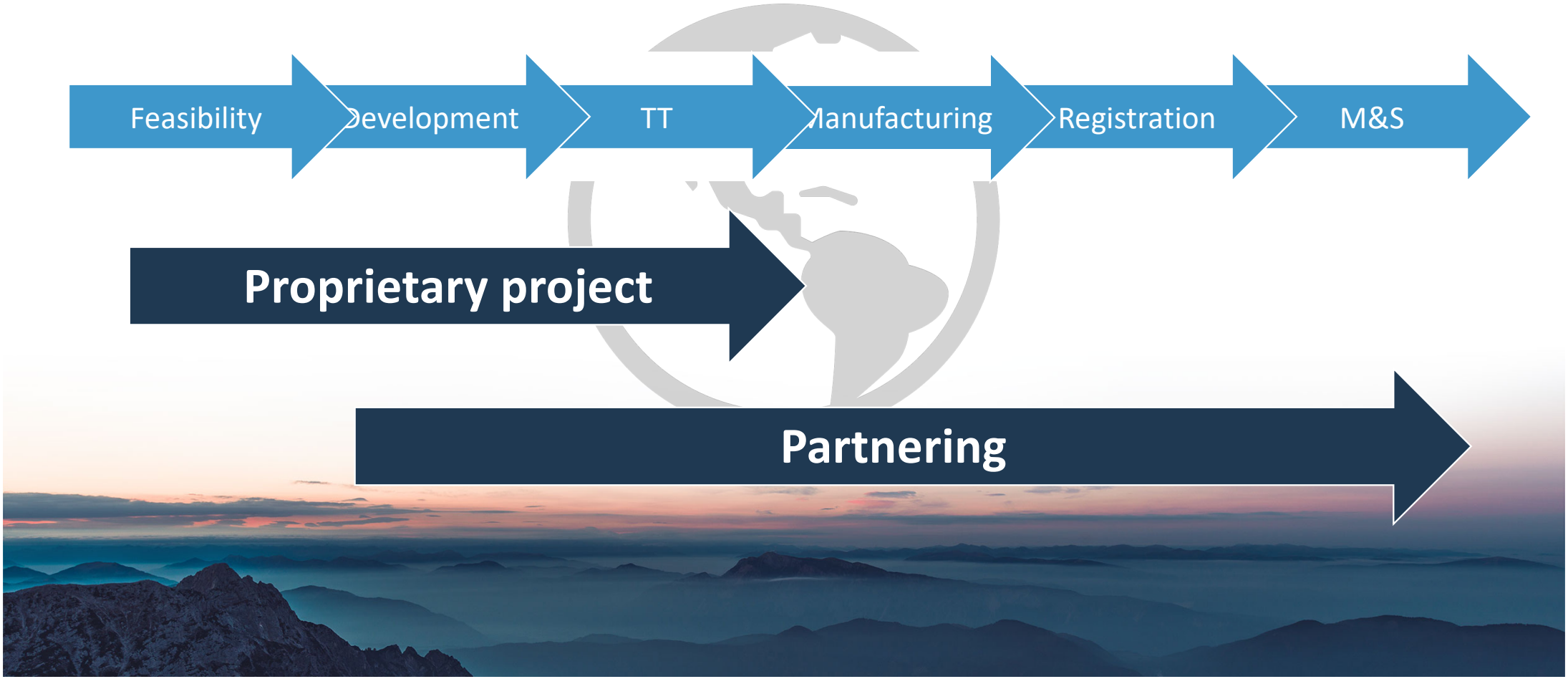
Particle engineering



Particle engineering



New products and new processes



Conclusion

New unique technology to dry protein

- Increases the stability
- Simplifies transport, storage and handling

New possibilities

- New Markets
- New Products
- New Patents

Benefits for the society

- Patients with chronic disease can take their medicine wherever they go
- Lowers cost and carbon footprint
- Increases the possibility for all people to get an adequate vaccination

Safe delivery in all climates