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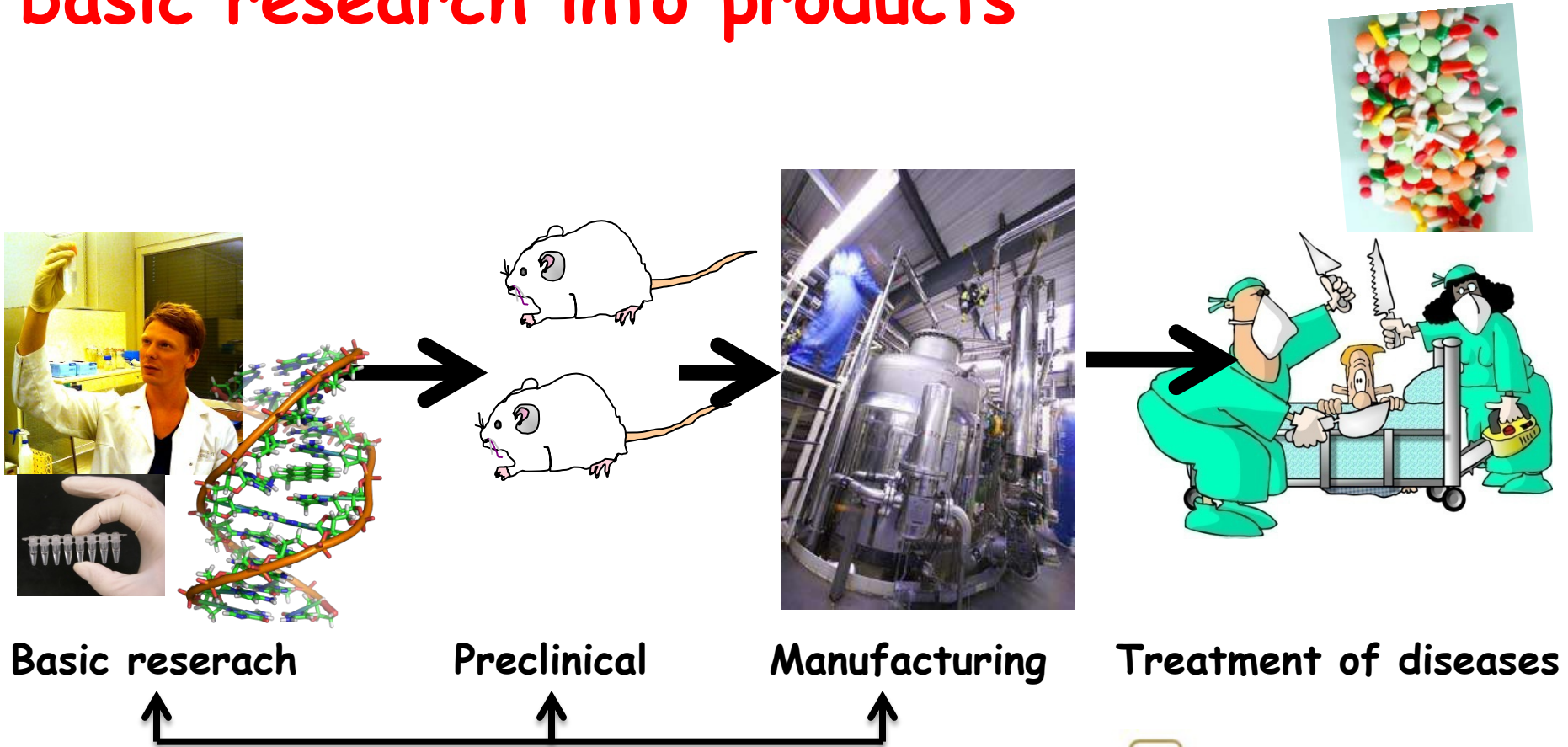


Tailoring the lifespan of drugs

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Translational research: The importance of academic-industrial partnership in turning basic research into products



Basic reserach

Preclinical

Manufacturing

Treatment of diseases

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Rethink Tomorrow

Short-lived biological and chemical drugs

1. A major challenge for the therapeutic use of many drugs is their short lifespan.

2. Removed very rapid from the body (minutes, hours, few days).

3. Limits their therapeutic efficacy.



4. Expensive treatment, large doses required, burden for the patient.

5. Many promising drug candidates will never reach the market due to these obstacles!



Why are they eliminated from the body?



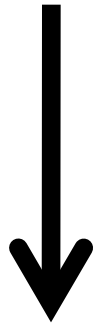
- The drugs are small.
- The drugs are removed via the kidneys, excreted in to the urine.
- The drugs are quickly broken down/ metabolized in the liver that receives up to 60 liters of blood each hour.

**We have developed a technology
that can:**

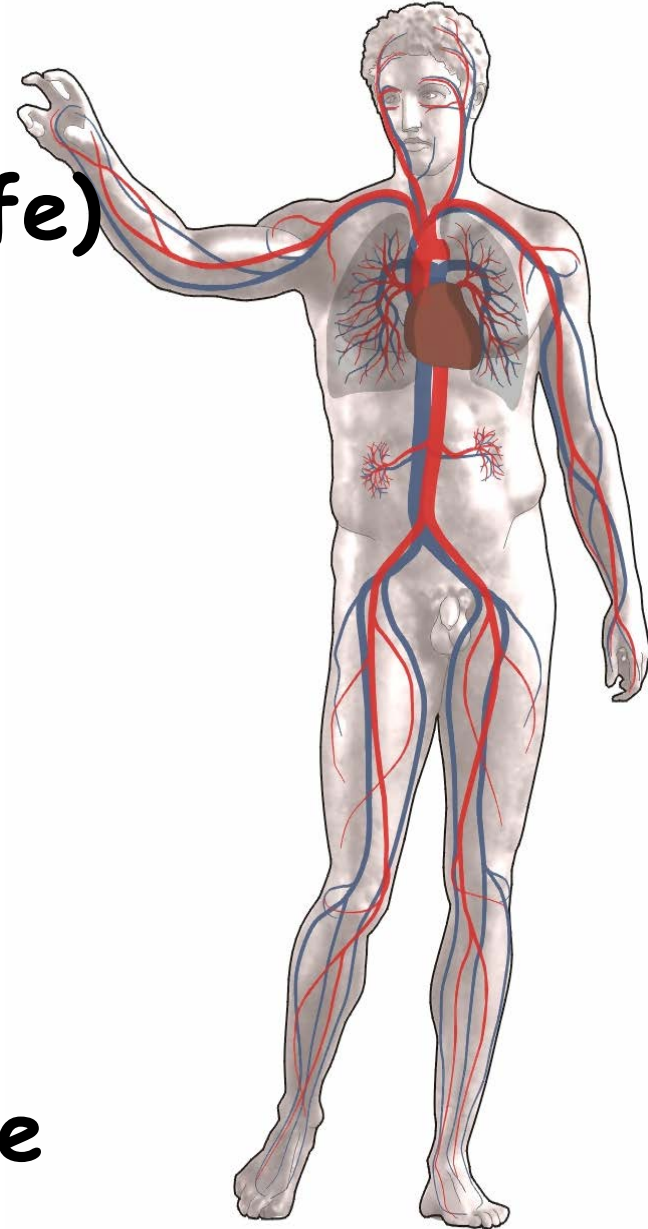
Extend the lifespan (half-life)



Improve bioavailability

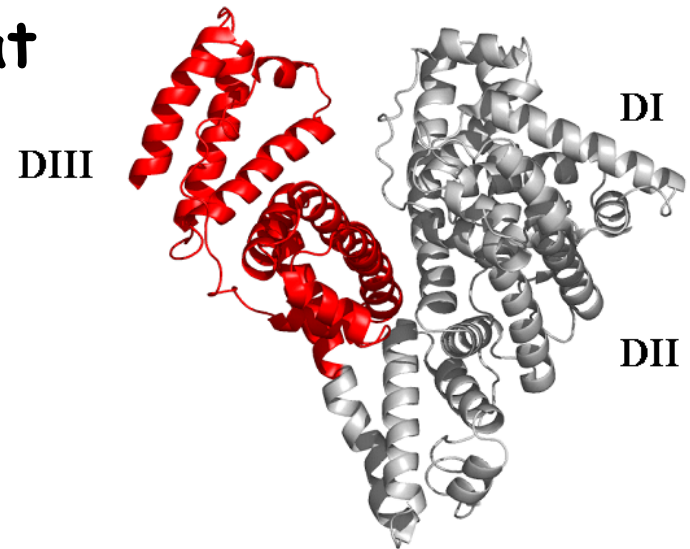


Improve therapeutic outcome



Albumin as a carrier of drugs

ALBUMIN is an ideal protein that can be utilized as a carrier of drugs!

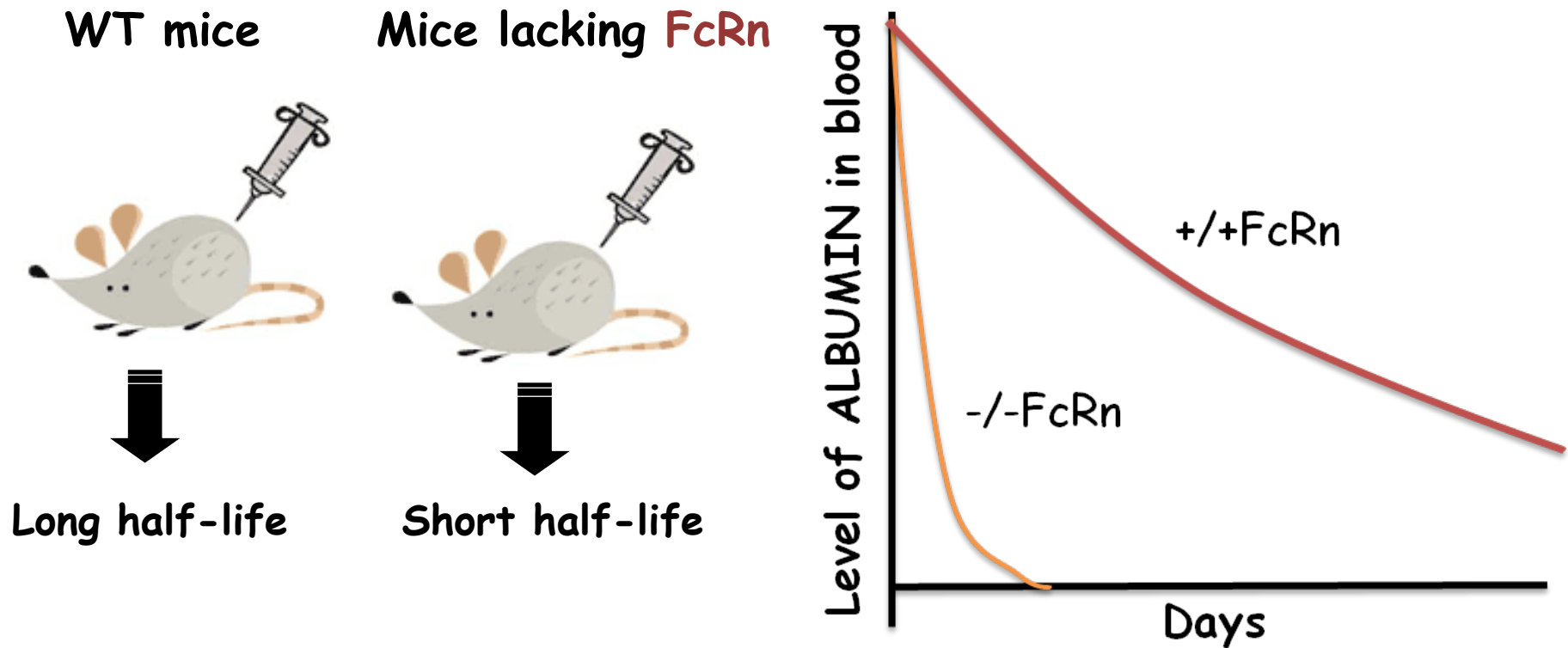


• Why ALBUMIN?

- It has a unique half-life of 3 weeks.
- It is not removed from the blood via the kidneys or the liver.
- It is a very stable protein, soluble in water.

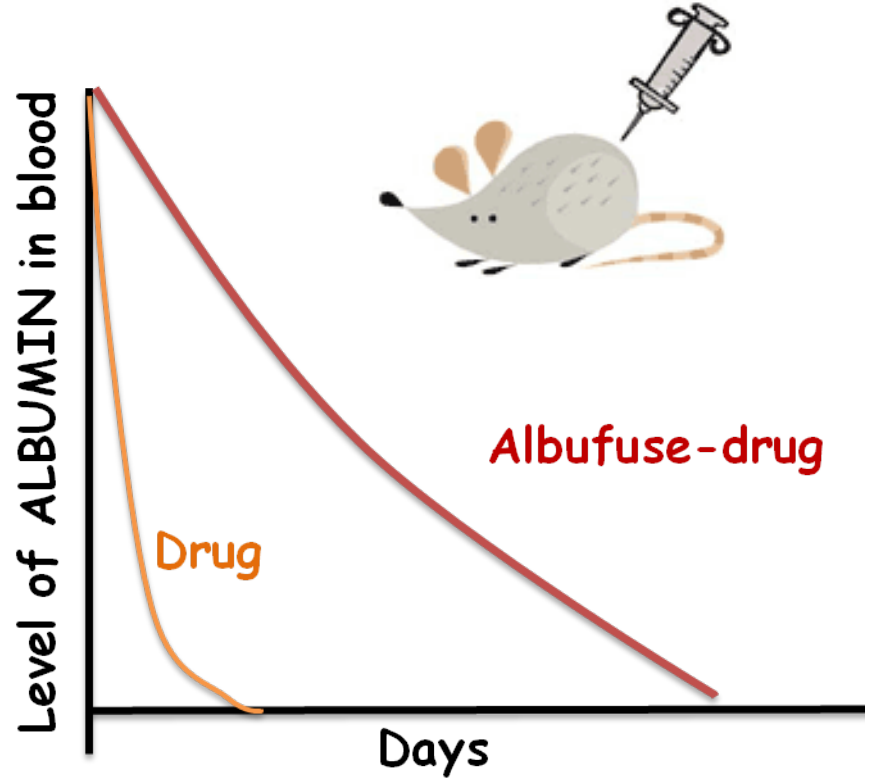
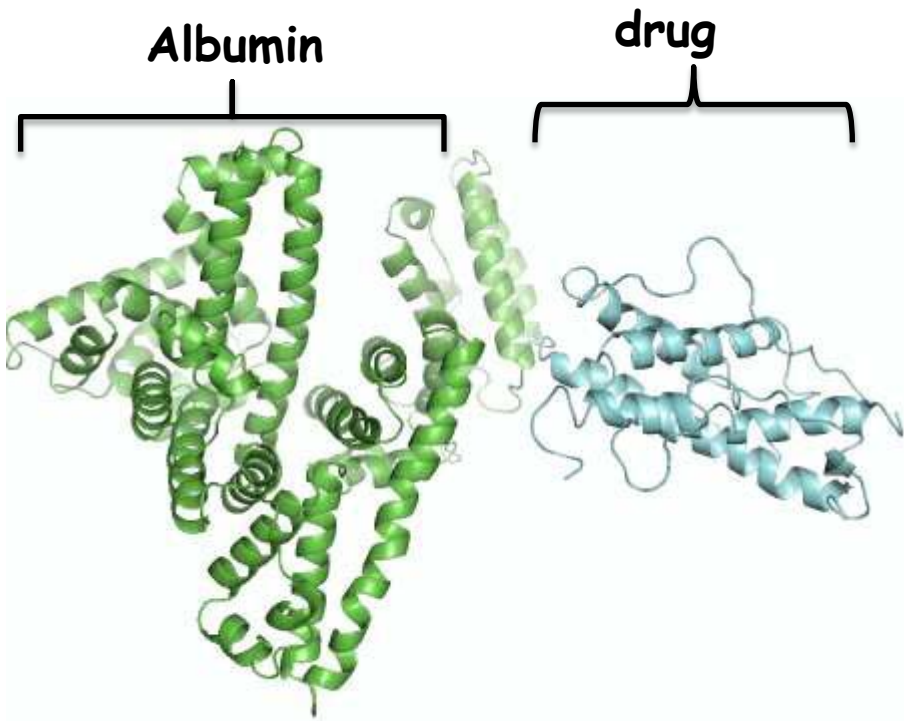
We and others have discovered why albumin is not removed quickly from the body

ALBUMIN is rescued from degradation due to binding to the neonatal Fc receptor (FcRn).



The Albufuse™ technology

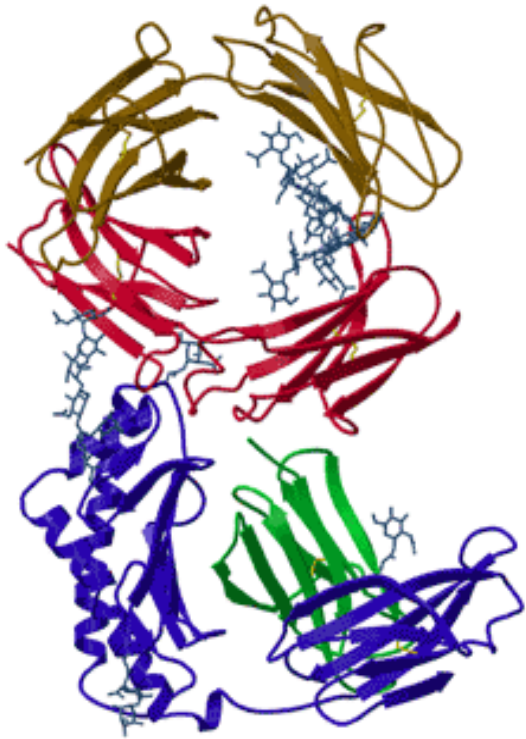
Genetic fusion of a drug of interest to albumin



Fusion to albumin extends the lifespan of drugs

Is it possible to enhance the
lifespan of albumin beyond
that of nature?

Molecular engineering of the ALBUMIN-FcRn interaction



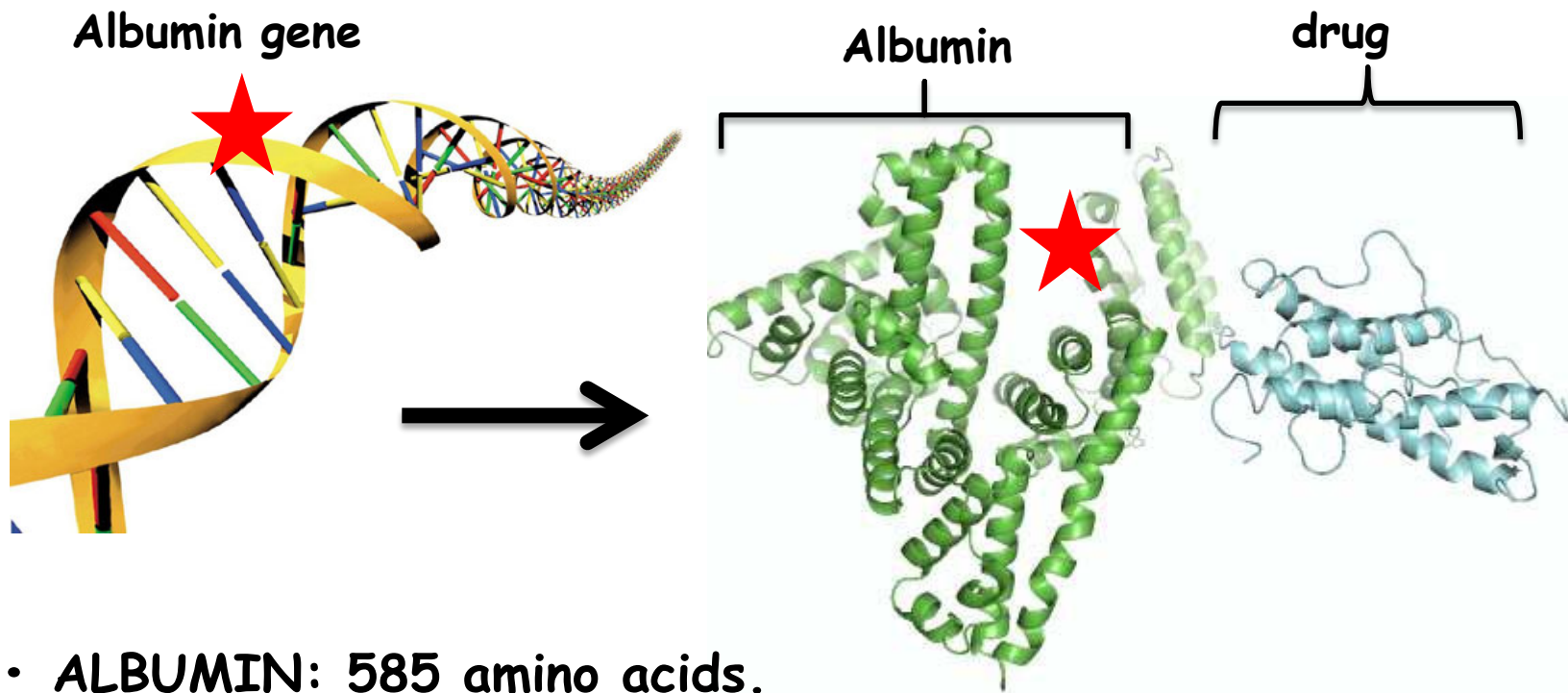
Our secret

We know how FcRn binds ALBUMIN

- We can design new ALBUMINs with improved binding to FcRn

- Bioinformatics and biotechnological tools

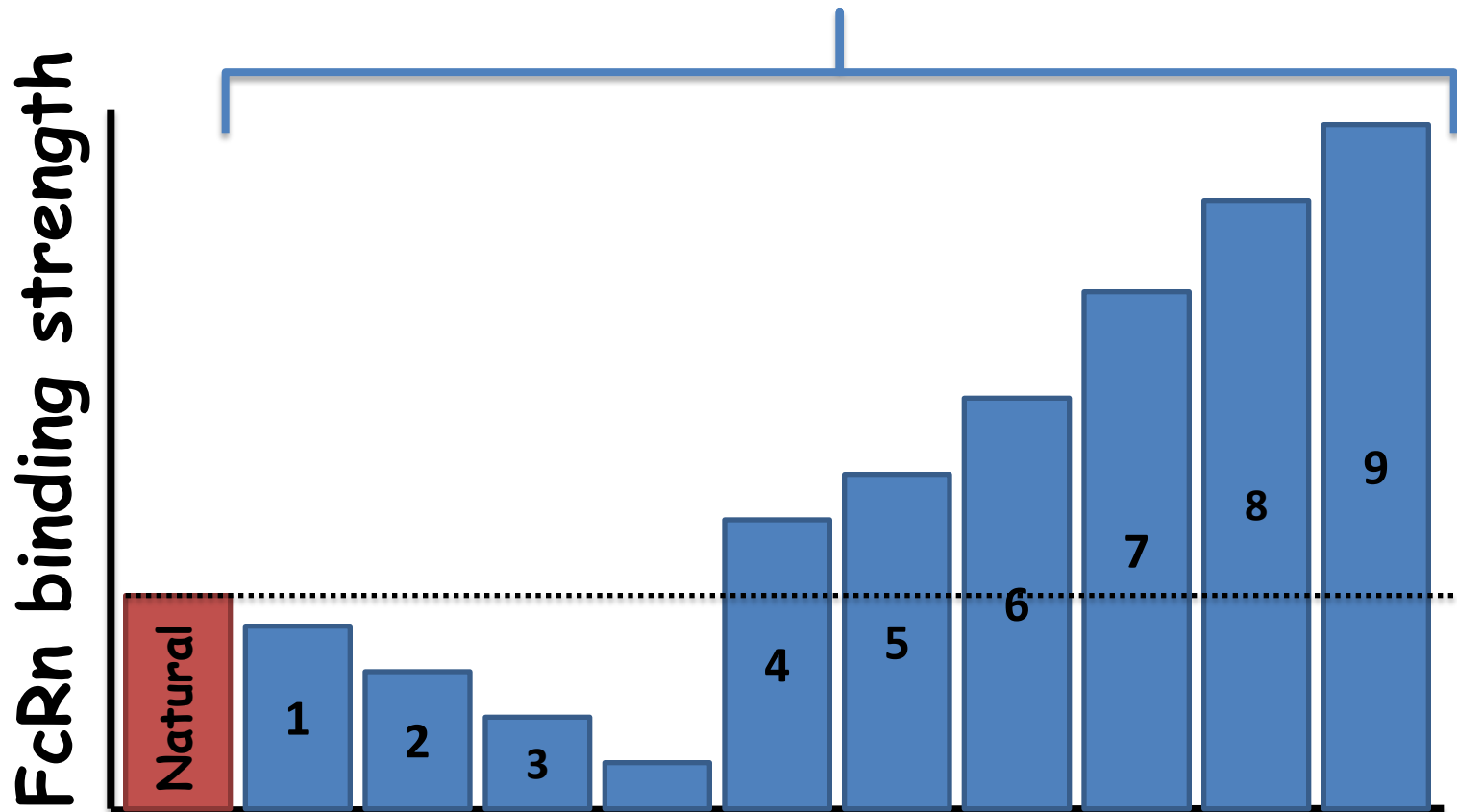
Design of "super"-ALBUMIN



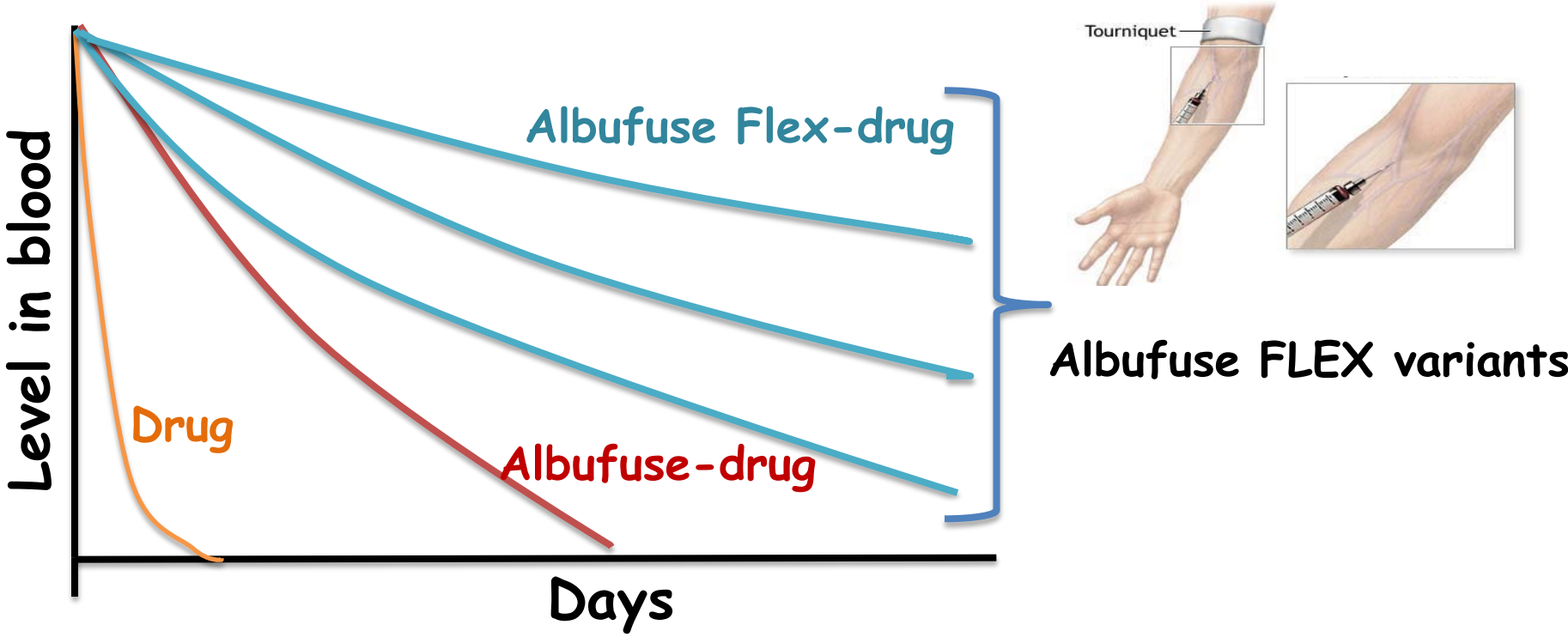
- A single point mutation (1/585) is enough to alter binding to FcRn dramatically!

ALBUMIN with a range of FcRn binding strengths

Albufuse™ Flex variants

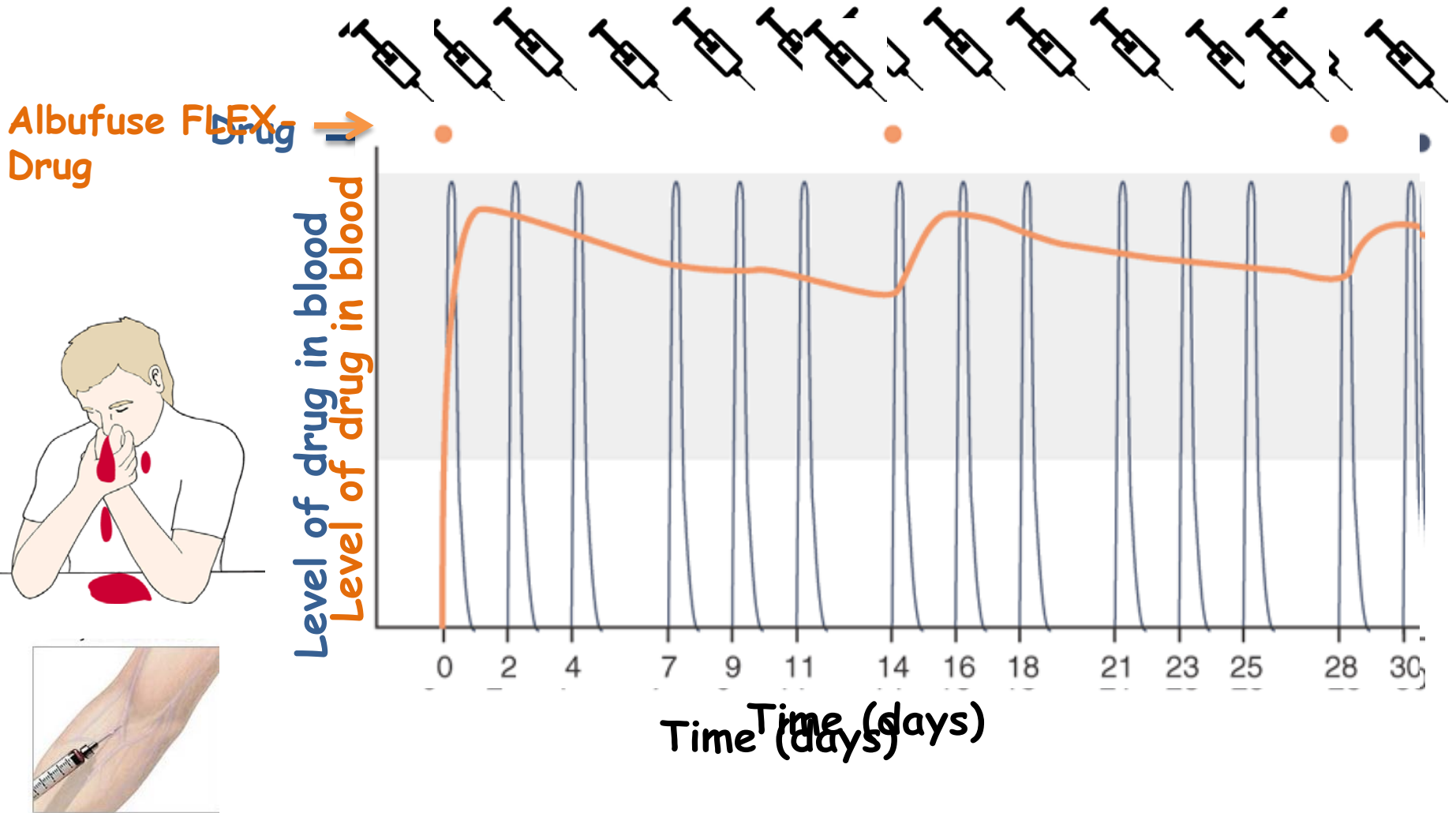


Superior lifespan of Albufuse™ Flex variants beyond that of natural albumin



Tailoring the lifespan using Albufuse Flex variants

Albufuse™ FLEX: reduced frequency of dosing and improved bioavailability



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