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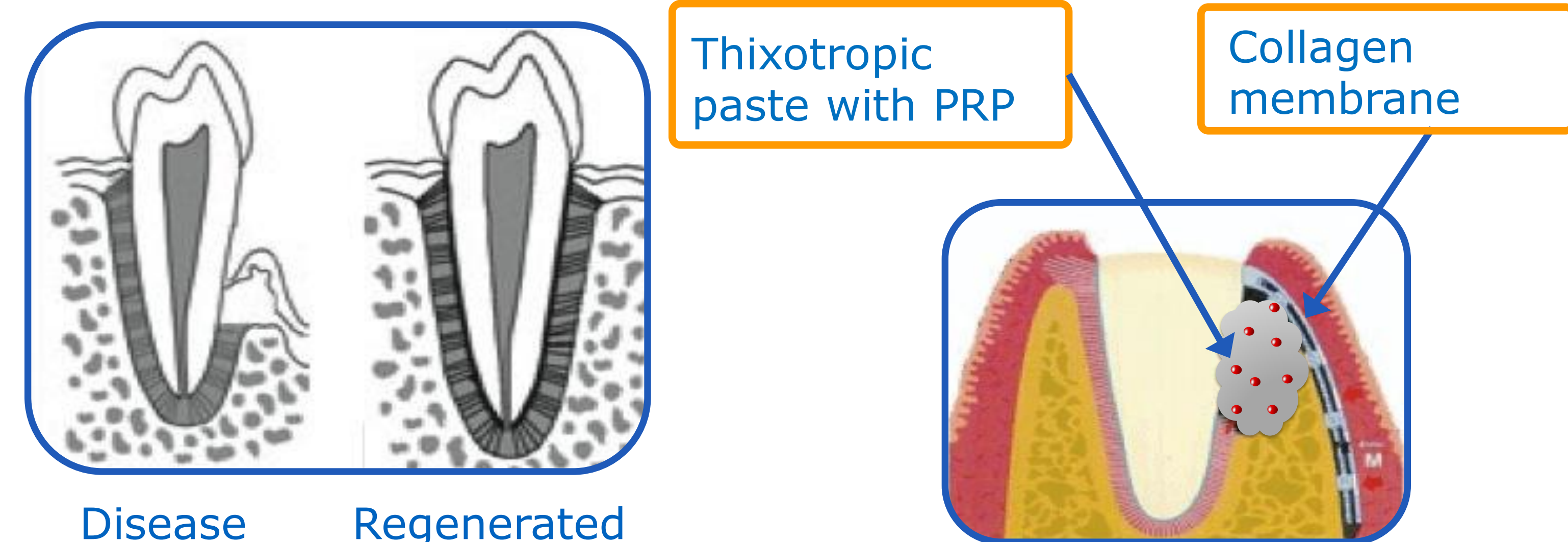
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## Introduction

Jawbone defect is a common problem among adults humans, which leads to a loss in bone structure, which supports the teeth causing a failure in the jaw that is susceptible to future infections as well as the potential difficult to eat. Human body has a limited self-regeneration in rebuilding or repairing damaged tissue. The healing rate of bone and gum tissues differs. Indeed, gum regeneration is faster than bone, which prevents the full healing. For this reason, some assistance is required to promote the complete recovery of the jaw.

## Current Treatment & Limitations

- ✓ Collagen membrane implantation
- ✓ Plasma-Rich Growth Factor (PRGF)
- Low bone rate regeneration
- Highest probability of infection (biofilm)



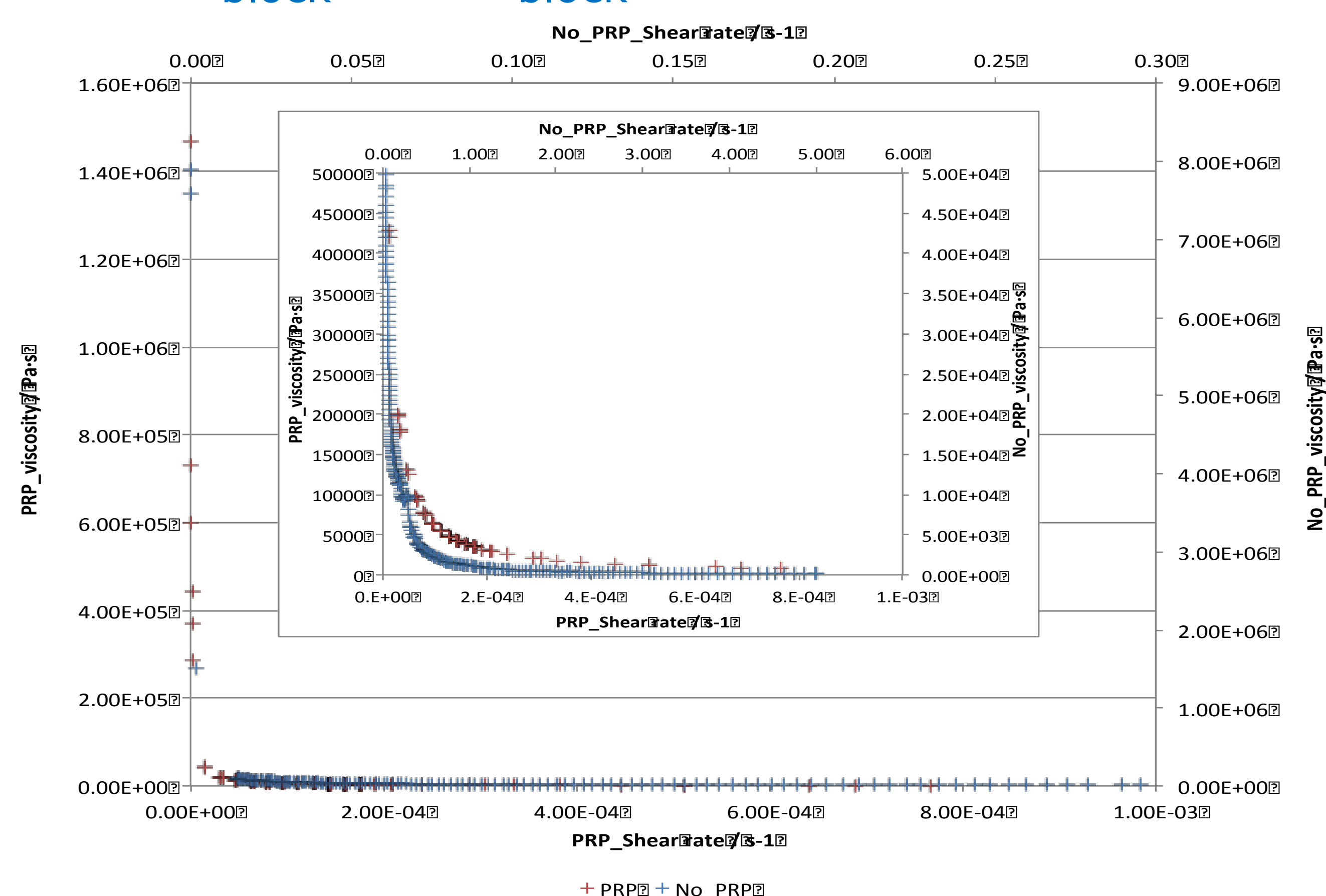
## Our Approach

### 1) Thixotropic paste

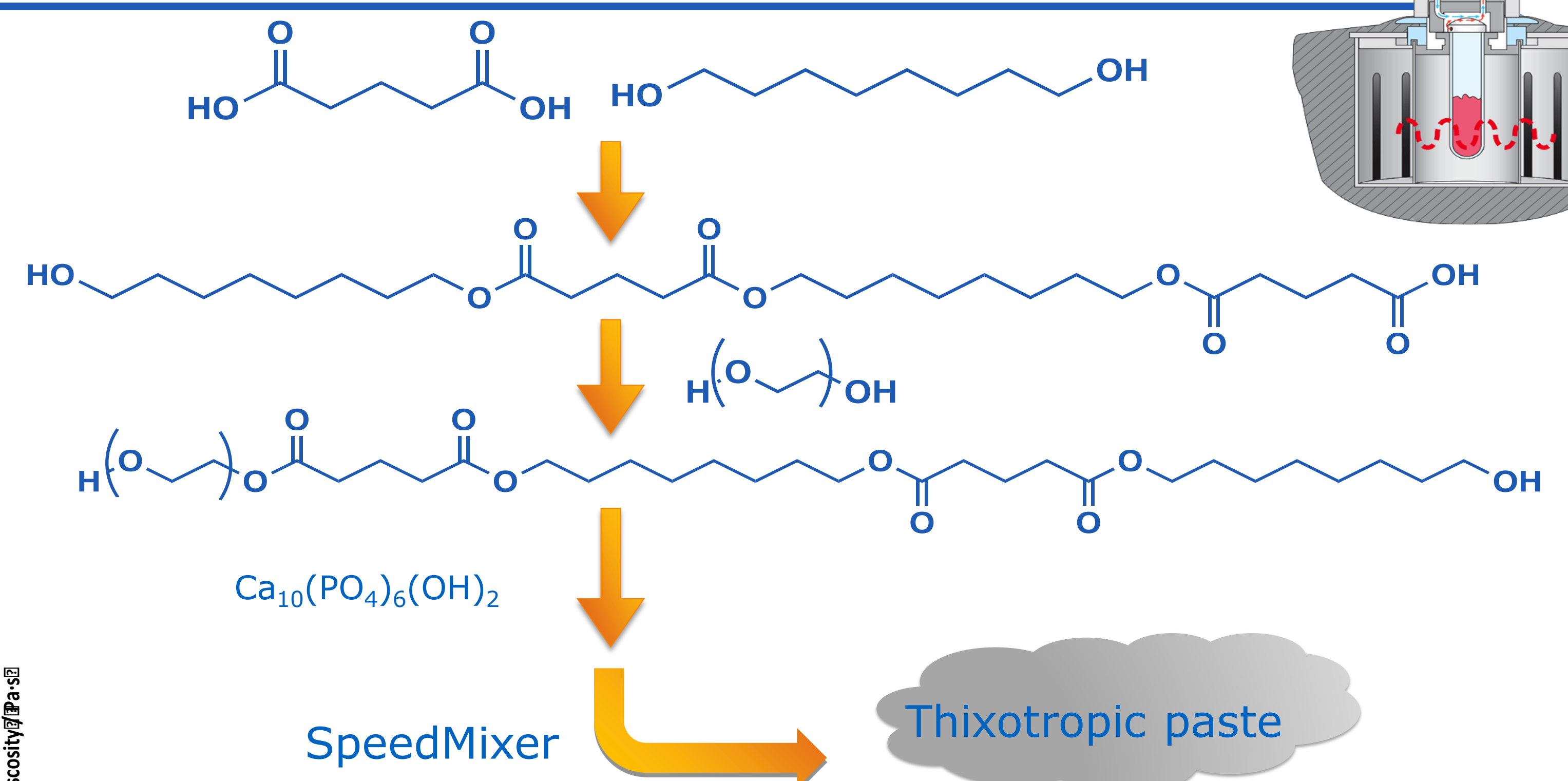


Rigid block

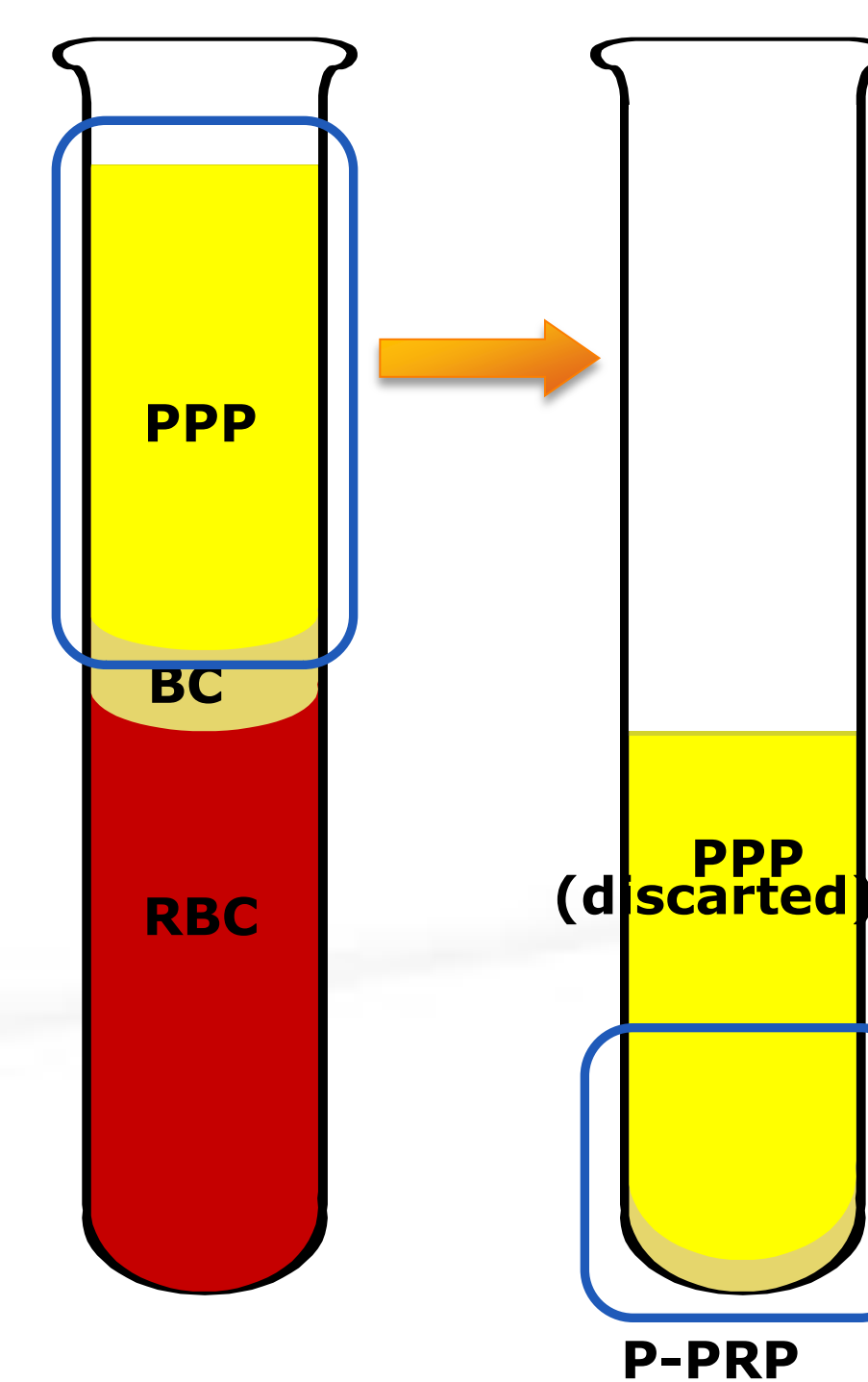
Flexible block



- Thixotropic behaviour enhance the **adaptability to the surface** of the tissue
- **Bioceramic** turns the hardness
- Suitable behaviour under physiological conditions
- The action of mechanical and heat forces can mold the paste consistency.
- Complete **degradation after 14 weeks**

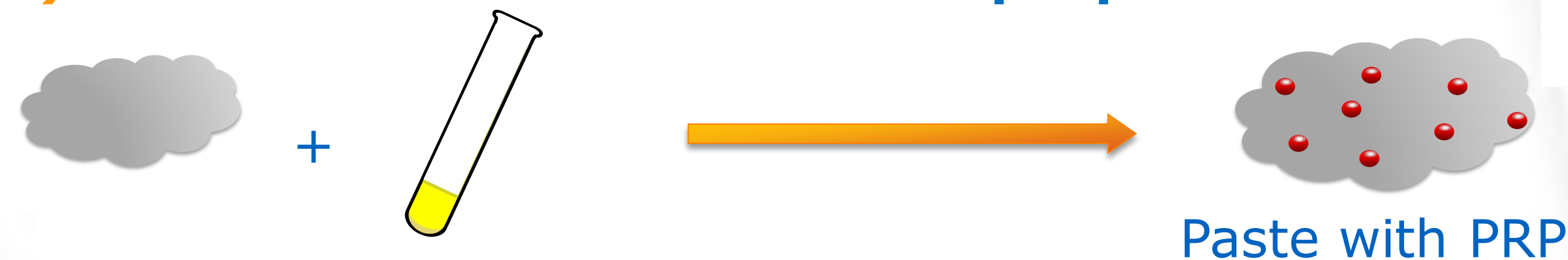


### 2) Use of autologous Plasma-Rich Platelet (PRP) to enhance bone regeneration



- High concentration of **Platelets** with high concentrations of **Growth Factors**
- Promote **healing** and **regeneration** of tissues
- **Increase** the **healing rate** of bone
- Avoid immunologic response
- Commonly used by cosmetic surgery

### 3) Addition of PRP to the thixotropic paste



- Can accept easily till **0.1% of PRP**
- PRP **non** modify the thixotropic behaviour
- **PRP is released** by the biodegradation process of the paste

## Conclusions

- ✓ The approach on this work allows to obtain a new generation biocomposite with tailored thixotropic properties. The thixotropic paste has a high performance under physiological conditions with a perfect adaptation to the surface.
- ✓ The formulation can accept easily till 0.1% (w/w) of PRP without modifying the physical properties.
- ✓ The use of autologous PRP enhances bone regeneration at the same time that minimizes immunologic response.

## Acknowledgments