



# CURAPATH

## PSar based solubilizing agent

Our PolySarcosine based solution for biologics improves both Stability and Solubility outperforming current solutions without compromising safety

Available for mAbs, recombinant vaccines, peptides, and hormones.



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RESOURCES



SOCIAL MEDIA



## CURAPATH

More than a CDMO



# The challenge



# Limitations of current formulations



# Our patented PSar solution



# Protein Aggregation



**Active  
Biologics**



**Shaking/  
Shear  
Stress**



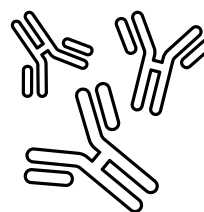
**Temperature  
Fluctuations**



**Storage/  
Hold Times**



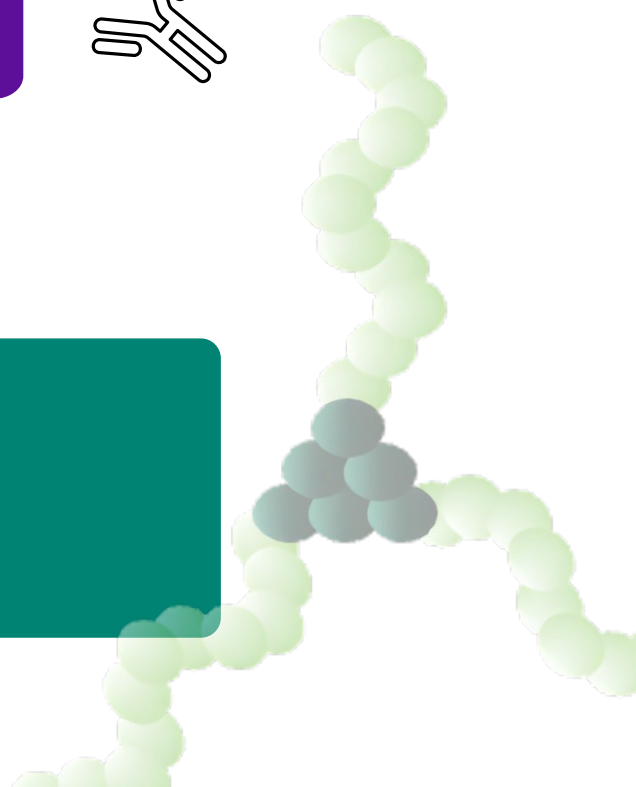
**In-Active  
Biologics**



**Biologics are highly sensitive molecules. External factors can lead to aggregation and loss of biological activity.**

## Associated Problems:

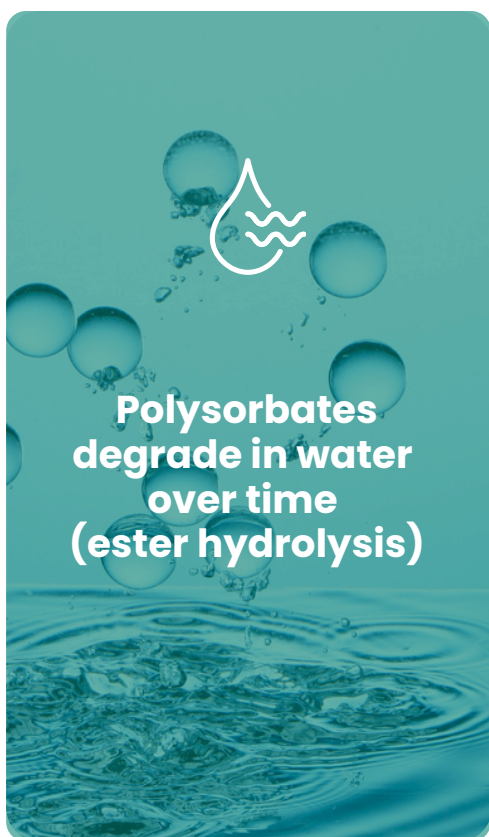
- Inaccurate dose
- Undesired immunogenicity
- Short shelf-life



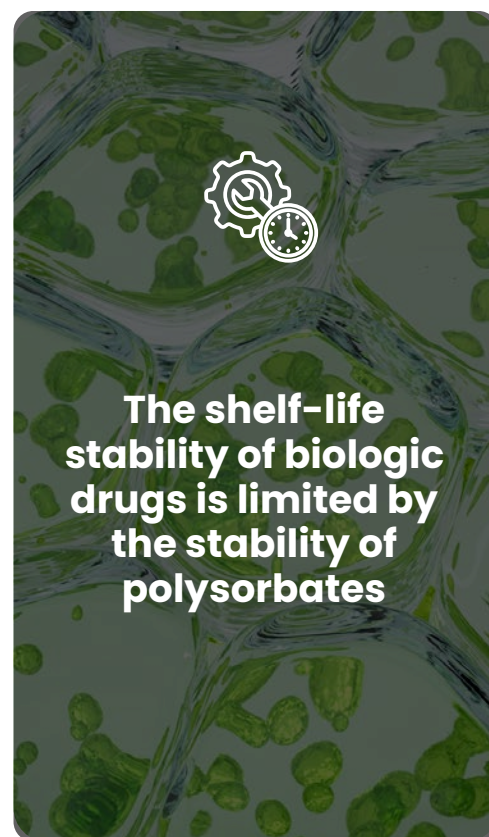
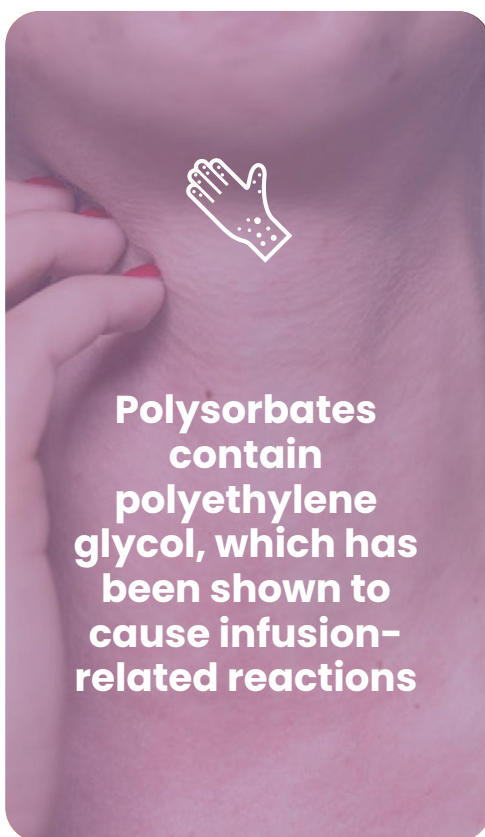
# Polysorbates

Polysorbates are used in 80% of all protein drugs on the market

Problems associated with polysorbates



Hydrolysis of Polysorbates results in degradation and subsequent aggregation of the protein



There has been little research on the development of a novel **surfactant designed** specifically to **address protein aggregation & stability in protein drugs**

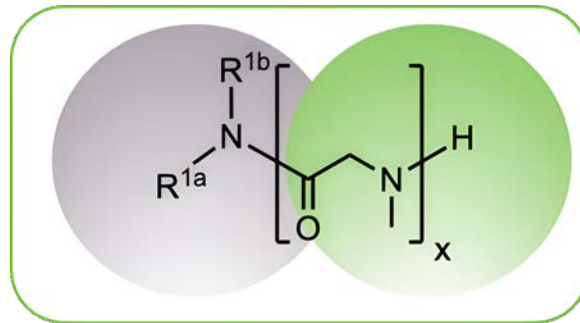
# Our patented PSar Solution

# 100+

polymers have been synthesized and screened

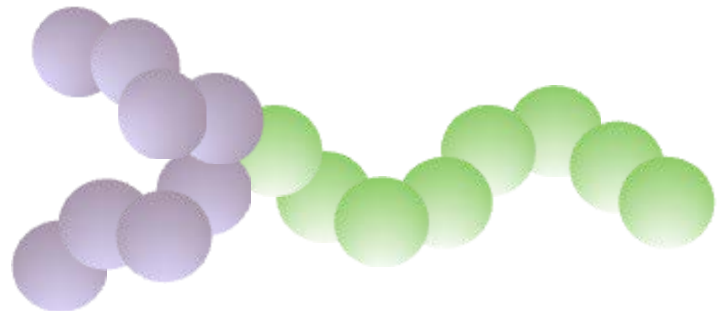
## Critical structural parameters identified

Short poly(sarcosine) block  
Variable hydrocarbon architectures  
Available: linear, branched, kinked



**Linear:** saturated hydrocarbon tail

**Branched:** two hydrocarbon tails



**Kinked:** unsaturated hydrocarbon tail



# Our solution



**Non-toxic and  
non-immunogenic**



**Biologically  
inert**

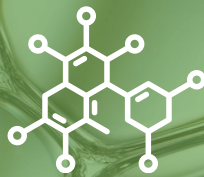


**Scalable**



**Long  
Patent  
Life**

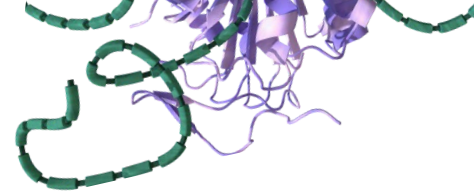
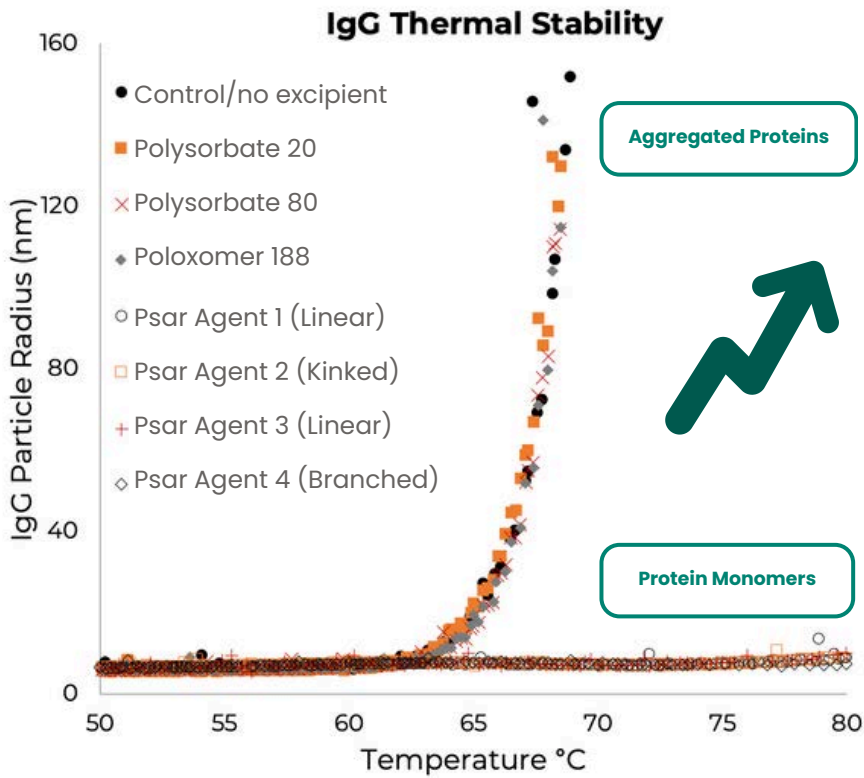
**Extending to 2042**



**Superior  
surfactant  
performance to  
polysorbates**

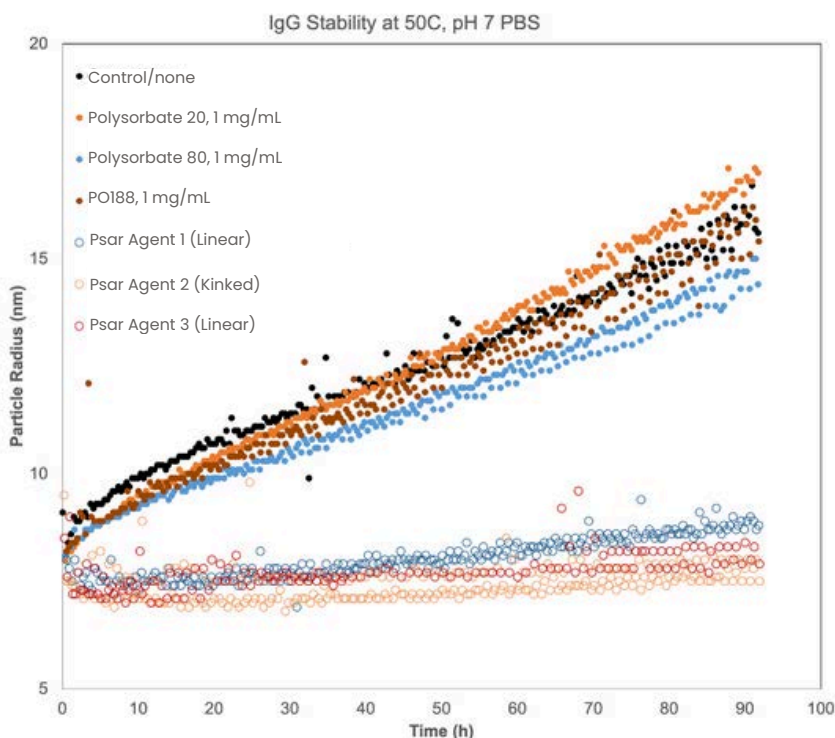
 **CURAPATH**

# Thermal Stability



All our architectures **inhibit** thermally-induced protein aggregation

# Stability over time

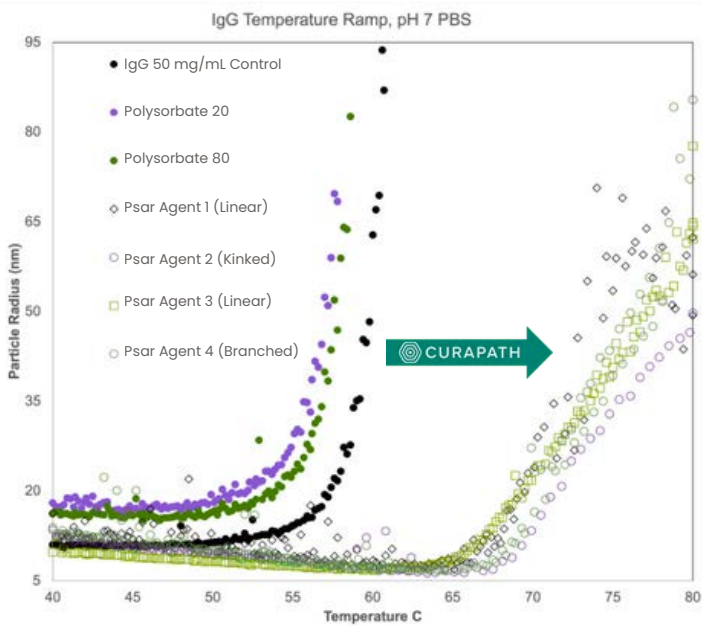


All our solubilizing polymers inhibited protein aggregation over **92+ hours**

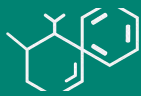
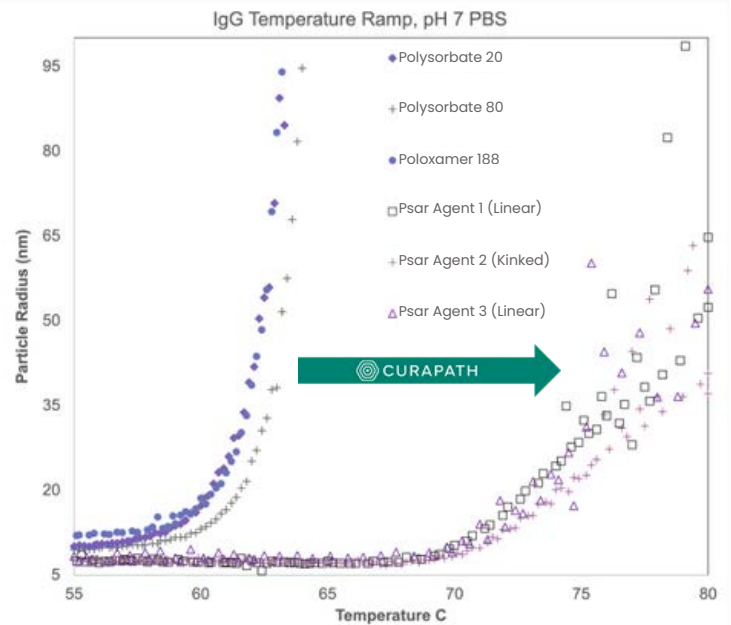


# Solubility enhancement

20mg/mL IgG



50mg/mL IgG

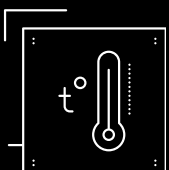
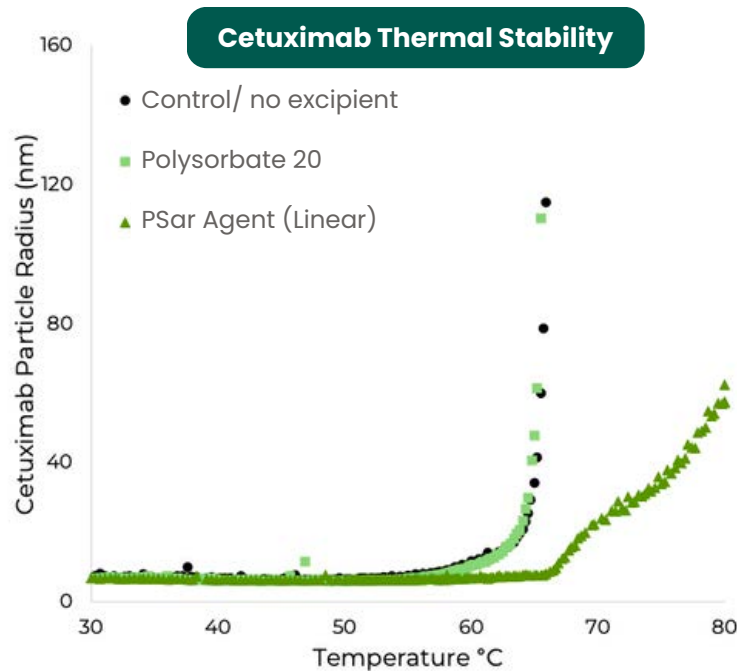
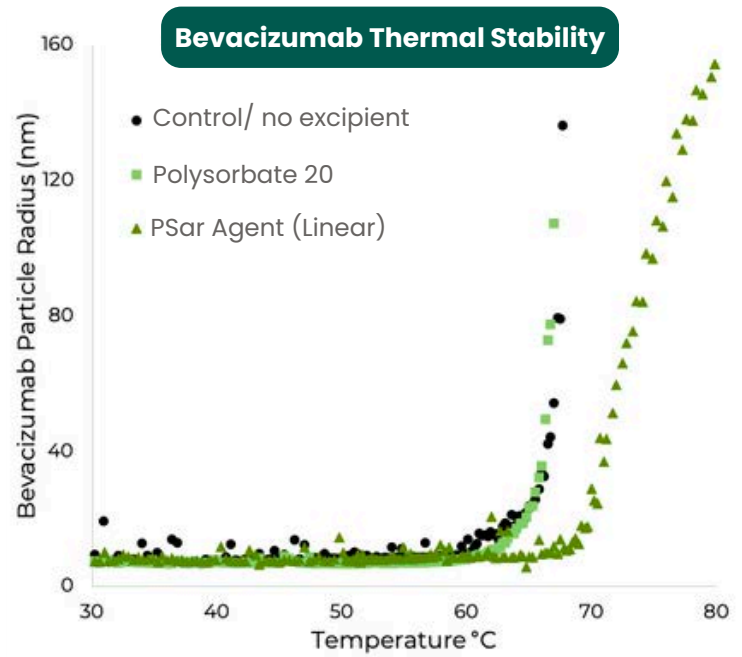
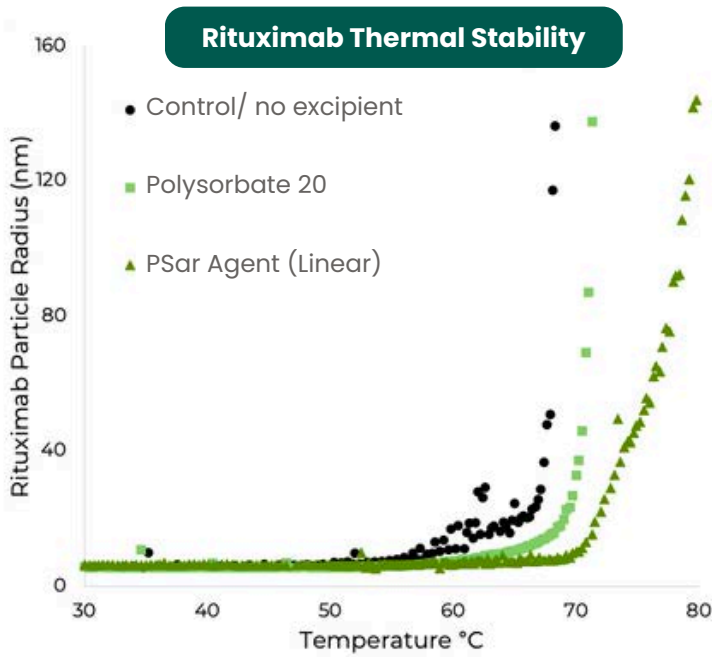


**CURAPATH Solubilizer demonstrated marked superior aggregation inhibition at 20-50mg/mL protein concentrations compared to the state-of-the-art excipients**

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# PoC with commercial drugs



Psar solubilizing agent outperforms polysorbate 20 for thermal stability of each approved mAb evaluated



# POC with approved proteins

**After testing our PSar solubilizer** with approved drugs we proved that



**PSar-based agents offer improved stability and solubility compared to traditional polysorbates**



**PSar excipient does not impact binding of mAb to target\***



**PSar excipient does not impact Therapeutic Activity\***

\*Data Available upon request

For more information: [bd@curapath.com](mailto:bd@curapath.com)



[www.curapath.com](http://www.curapath.com)

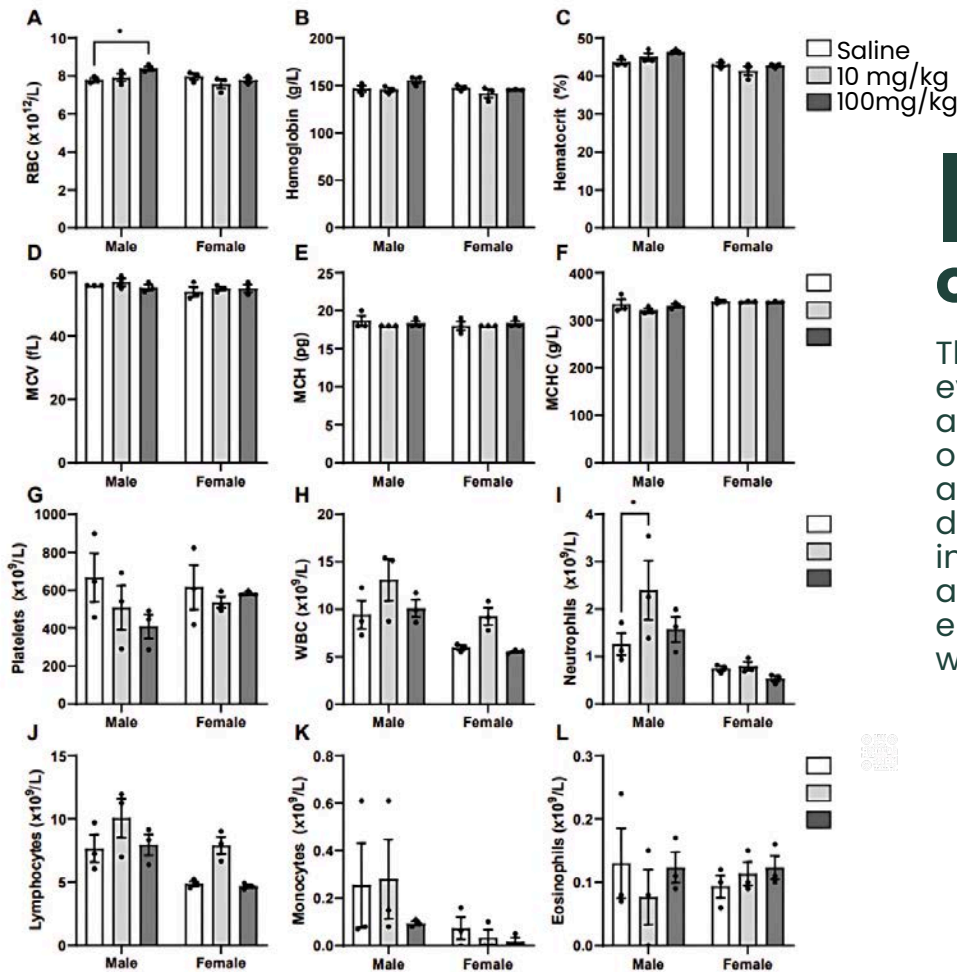
# In vivo toxicity



**Sprague-Dawley rats**



Euthanasia, blood collection for biochemistry and hematology



## In-vivo observations

The clinical signs were evaluated 10 minutes and 1h after the administration and on Days 2-3, 9-10, 16-17, 23-24 and 29. Signs of pain or distress evaluated. The injection site was observed and any abnormalities as erythema, edema or necrosis were monitored.



**i.v. administration of 10 or 100 mg/kg of PSar excipient did not cause local irritation. Biochemistry and Hematology profiles comparable to control saline**

**Hematology profile in Sprague-Dawley rats. Male & female Sprague-Dawley rats were administered with saline or PSar excipient by intravenous injection once a week for 4 weeks.**





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## PSar based solubilizing agent



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