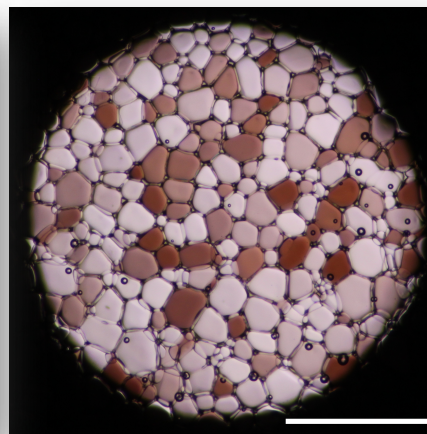
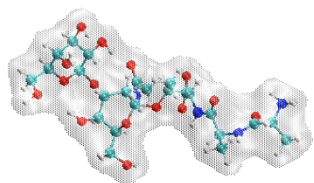


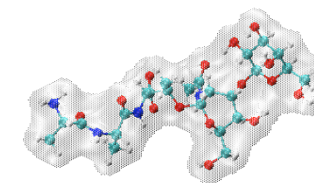
# ***Mimicking Antifreeze Glycoprotein Function with Synthetic Polymers***



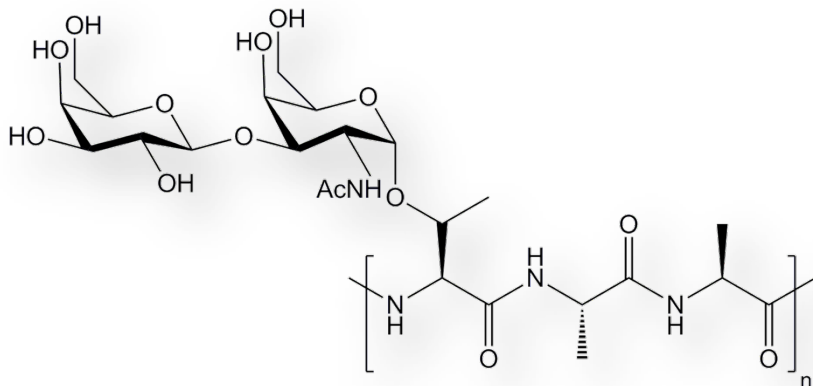
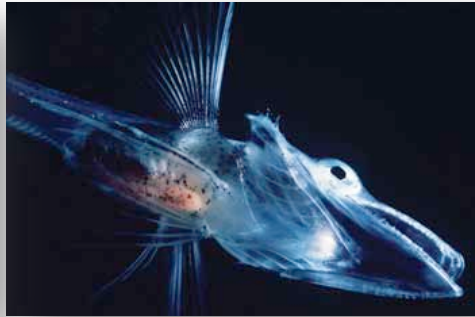
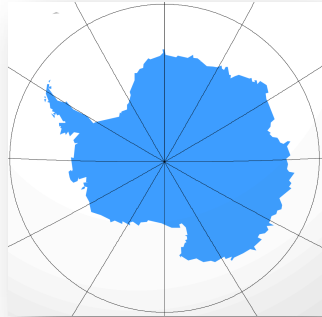
**Robert C. Deller, Manu Vatish, Daniel A. Mitchell &  
Matthew I. Gibson**



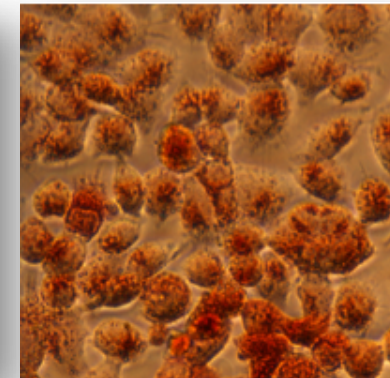
[r.c.deller@warwick.ac.uk](mailto:r.c.deller@warwick.ac.uk)  
[www.warwick.ac.uk/go/gibsongroup](http://www.warwick.ac.uk/go/gibsongroup)



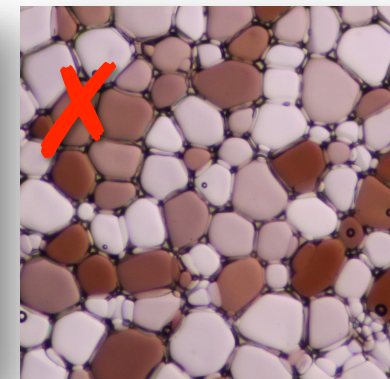
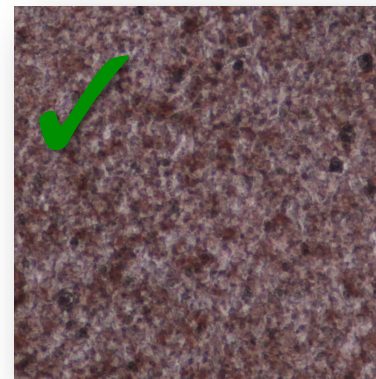
# Antifreeze glycoproteins



AFGP structure. An AAT tripeptide backbone (n=4-55) with an O-linked disaccharide.

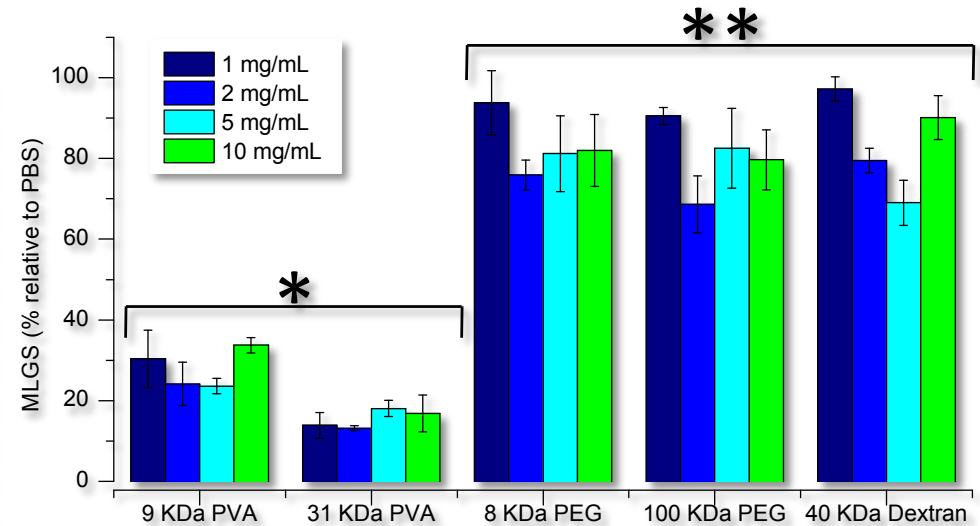
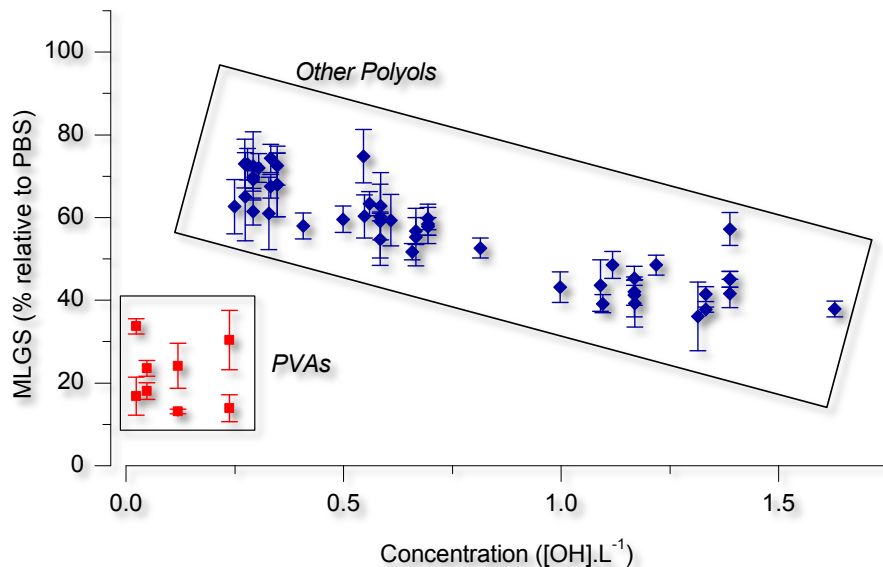
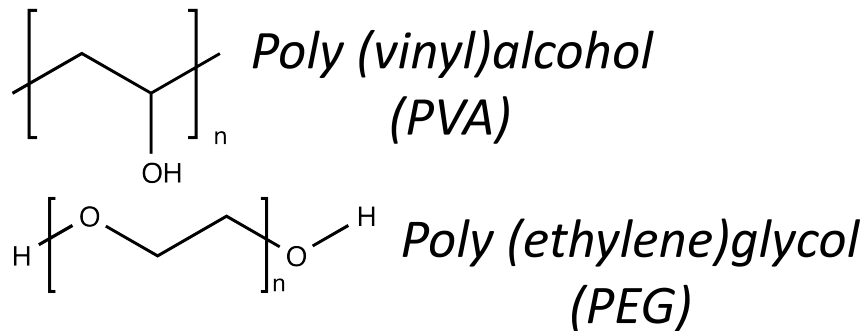


Ice crystal recrystallisation upon thawing damages cells

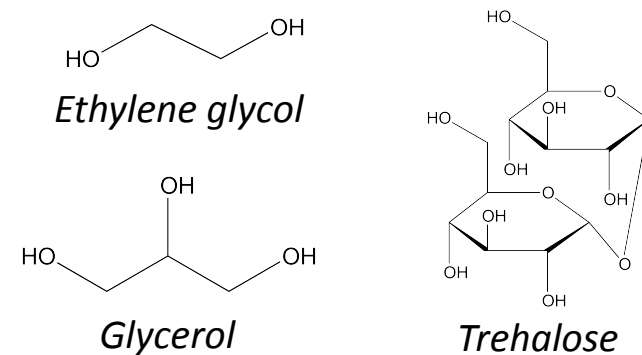


AFGPs inhibit ice recrystallisation

# Ice Recrystallisation Inhibition

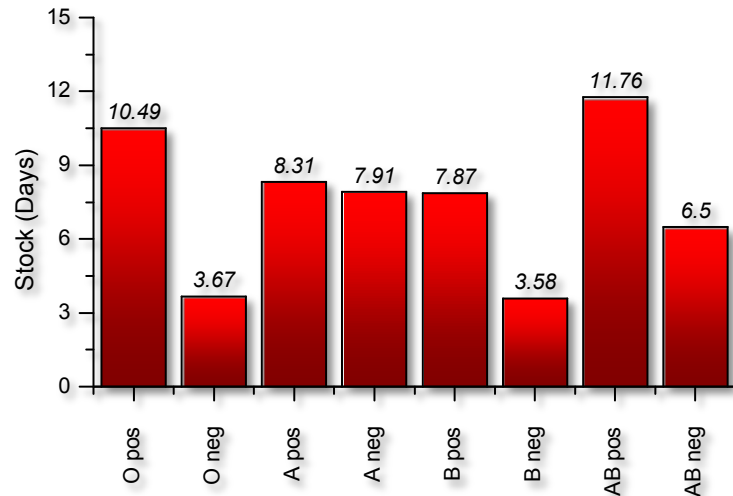


Other polyols include common cryopreservatives

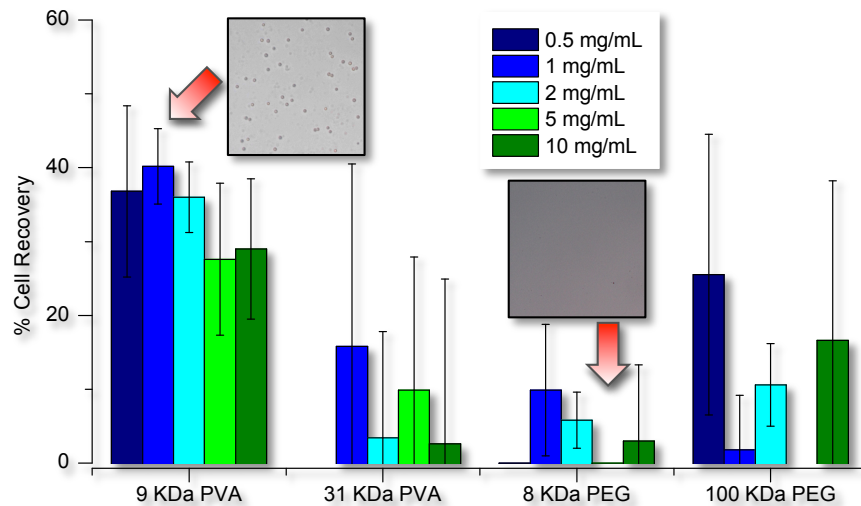


Polymeric structure of PVA is critical

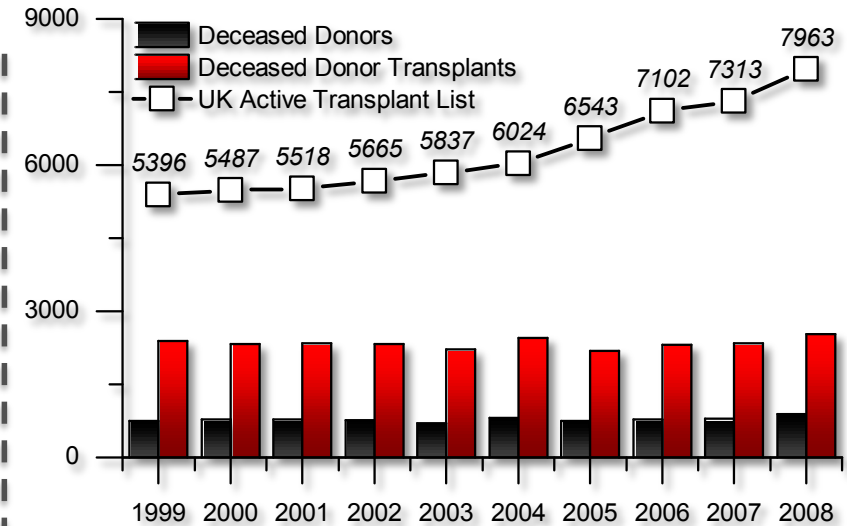
# Biological Application



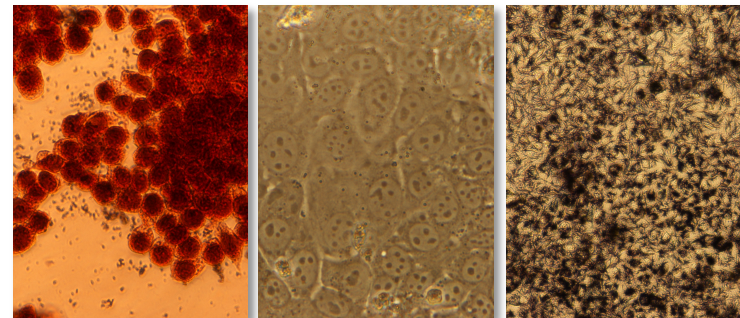
UK blood stocks (25/09/12)



Improve storage of red blood cells



UK transplantation trends



Cryopreserve different cell types including haematopoietic stem cells

# Acknowledgements



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[www.warwick.ac.uk/go/gibsongroup](http://www.warwick.ac.uk/go/gibsongroup)



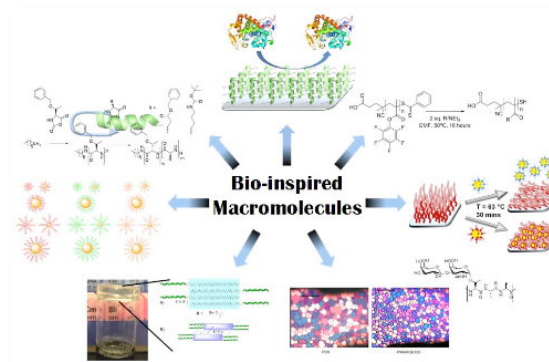
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M. I. Gibson; *Polym. Chem.*, 2010, 1, 1141-1152.