

CREATING GLASSY TISSUES

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Kiln formed glass is heated and cooled in a controlled manner and can be set to hold at a specific temperature. Venting heat from the kiln essentially "freezes" the molten glass in place at a selected time point.

Trichoplax adhaerens is a marine animal consisting of a simple, flat body plan of three tissue layers. *T. adhaerens* reproduces via motility-induced ductile tissue deformations, essentially undergoing 'binary fission'. These animals lack a defined body shape; hence they change shape continuously displaying ductile-to-brittle tissue deformations, including the ability to fracture and heal [1].

Glass tissues with cells of different colors were created to replicate tissues in *T. adhaerens*. Our preliminary studies show promising possibilities of using glass in its transition state to be useful as an analog to study tissue mechanics [2]. We show two examples below where the glass tissues can replicate ductile and brittle deformations.

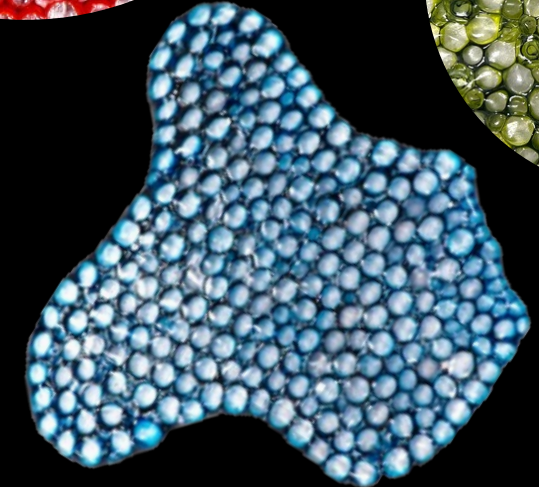
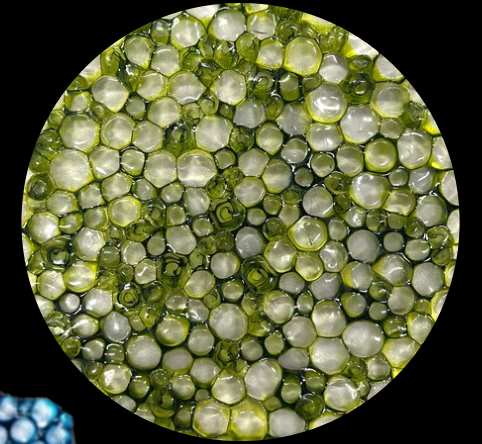
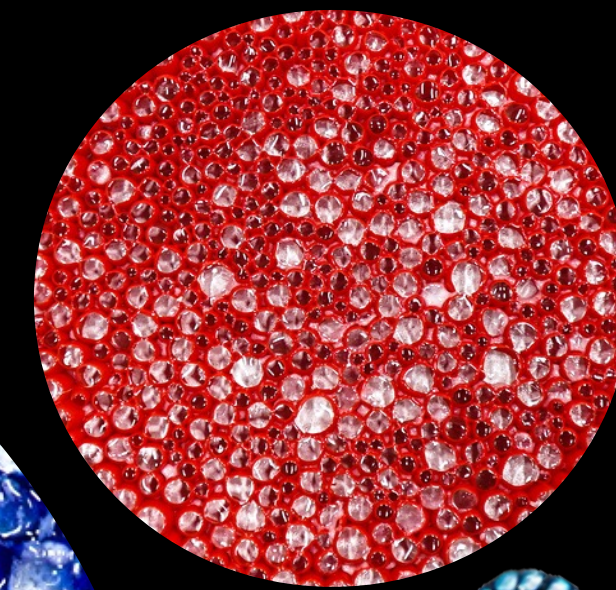
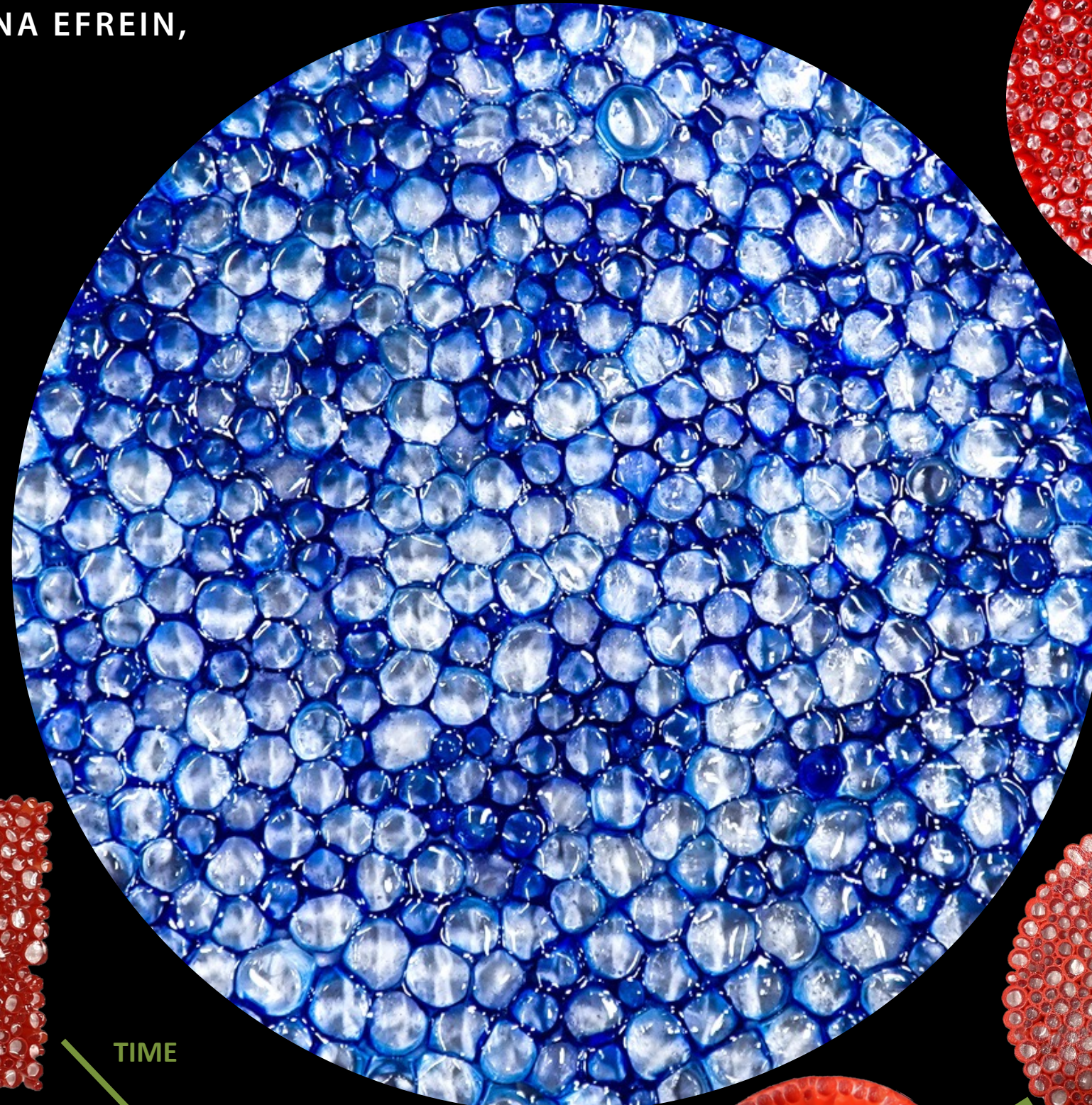
References:

[1] Vivek N. Prakash, M. S. Bull and M. Prakash, *Nature Physics*, 17, 504–511 (2021).

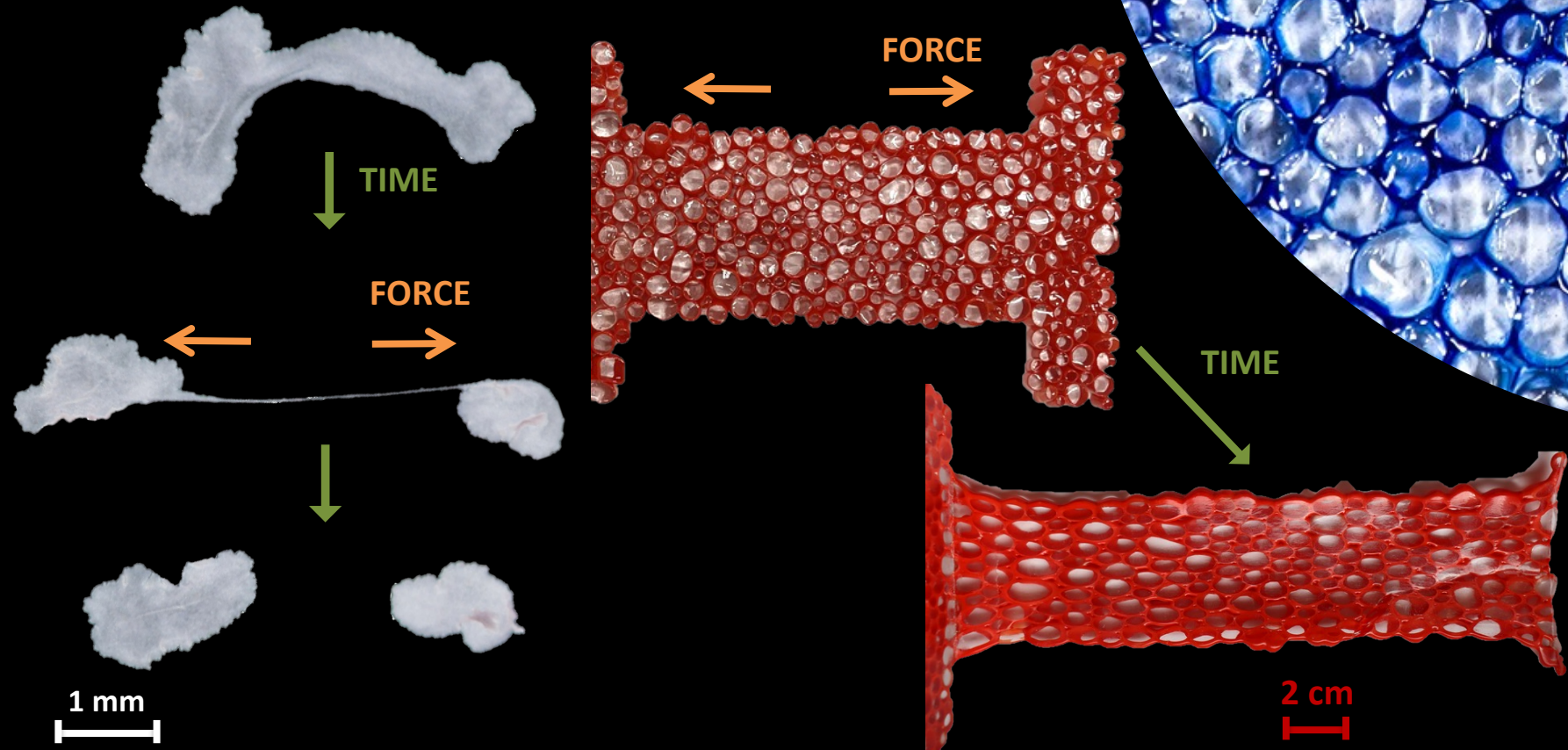
[2] Jenna Efrein, Carolyn Delli-Santi, and Vivek N. Prakash, *Glass Art Society Journal*, 49-51 (2023).



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