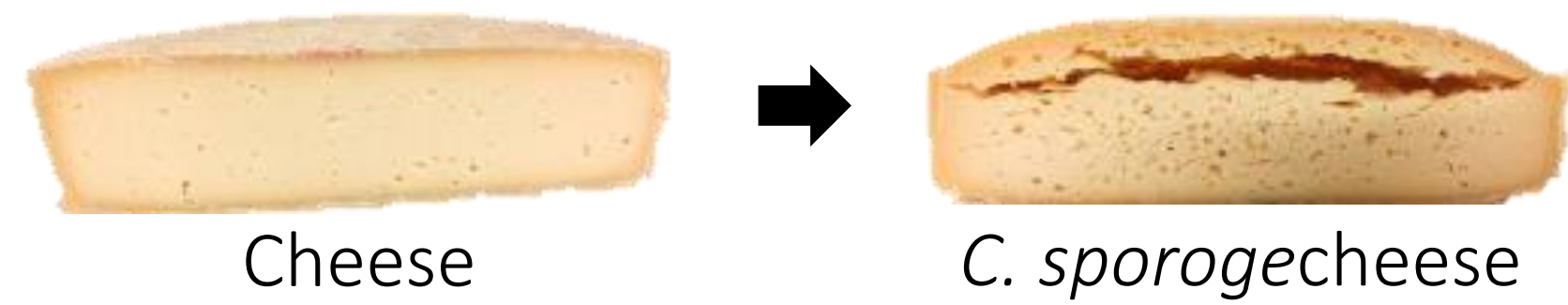


Insights into spore germination: Live spore imaging in *C. sporogenes*

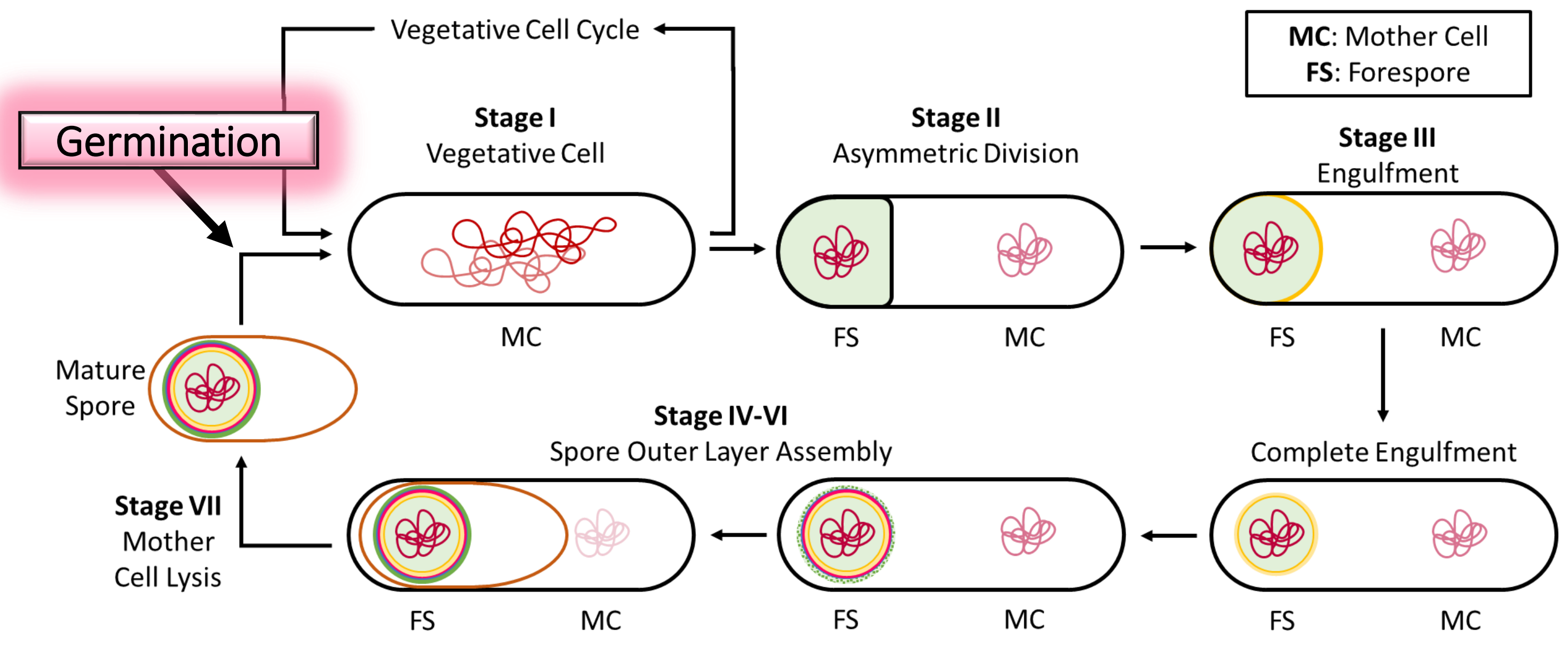
Anne S Williams*, H Fisher**, PA Bullough**, R Fagan**, WM Durham*

Significance

Clostridial spores have many layers which contribute to their resistance to variables such as extreme temperatures, UV radiation, and antibiotics, and may exist in aerobic environments. In this work, we begin to resolve the roles of three key proteins that exist in the outermost layers of the spores; CsxA, CsxC, and CsxB. CsxA makes up the outermost, bag-like, layer of the spore, called the exosporium. CsxC makes up the crystalline sheets that lie between the exosporium and the spore body. Finally, CsxB may play a vital role in stabilising the morphology of the spore coat, which is extremely important in maintaining spore viability.

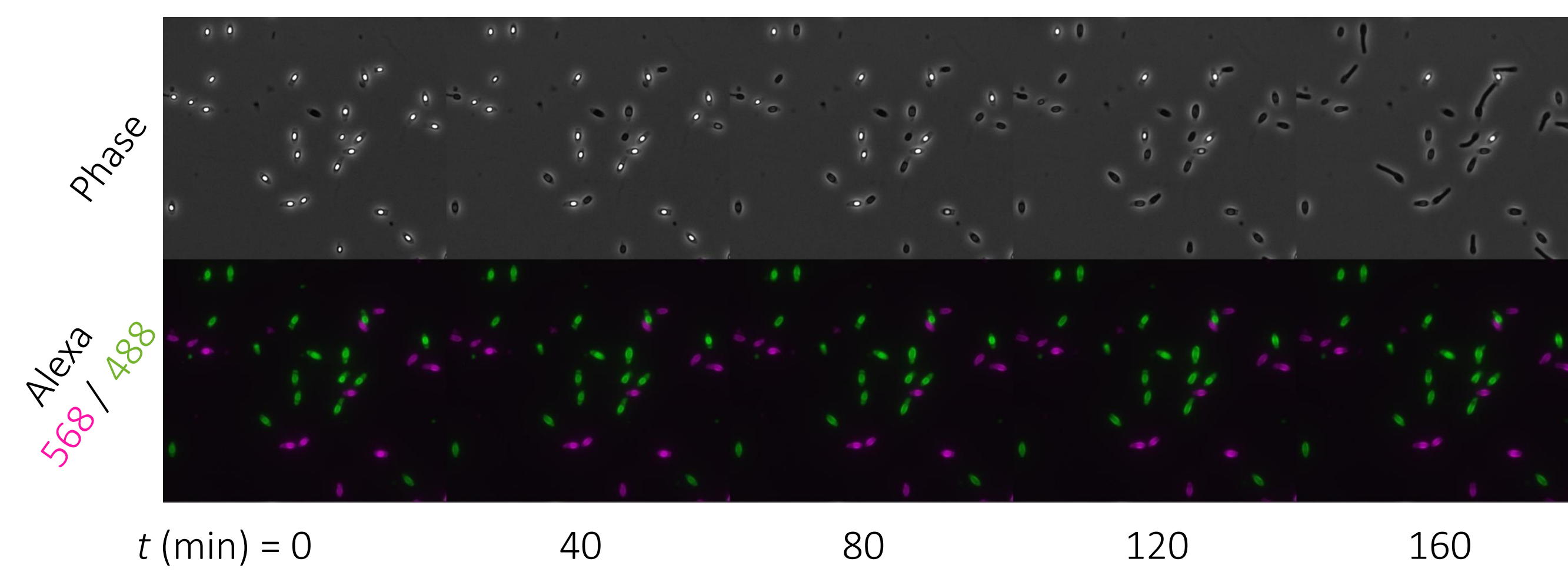


Sporulation and Germination Cycle

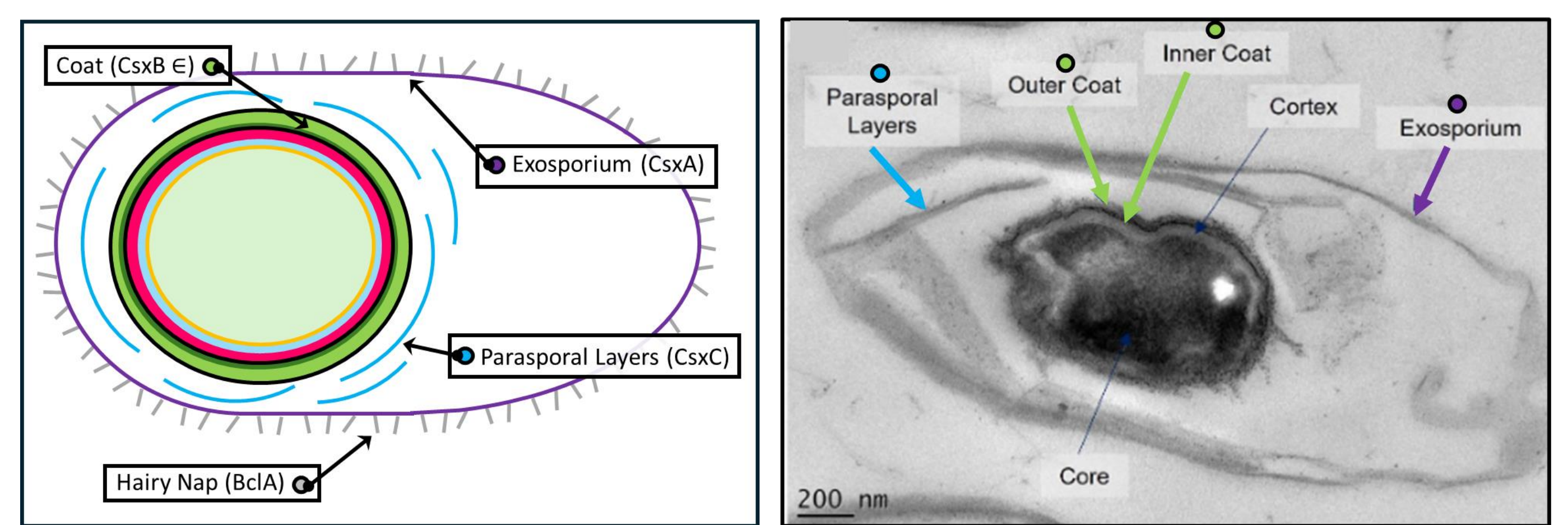


Anaerobic live imaging in co-culture

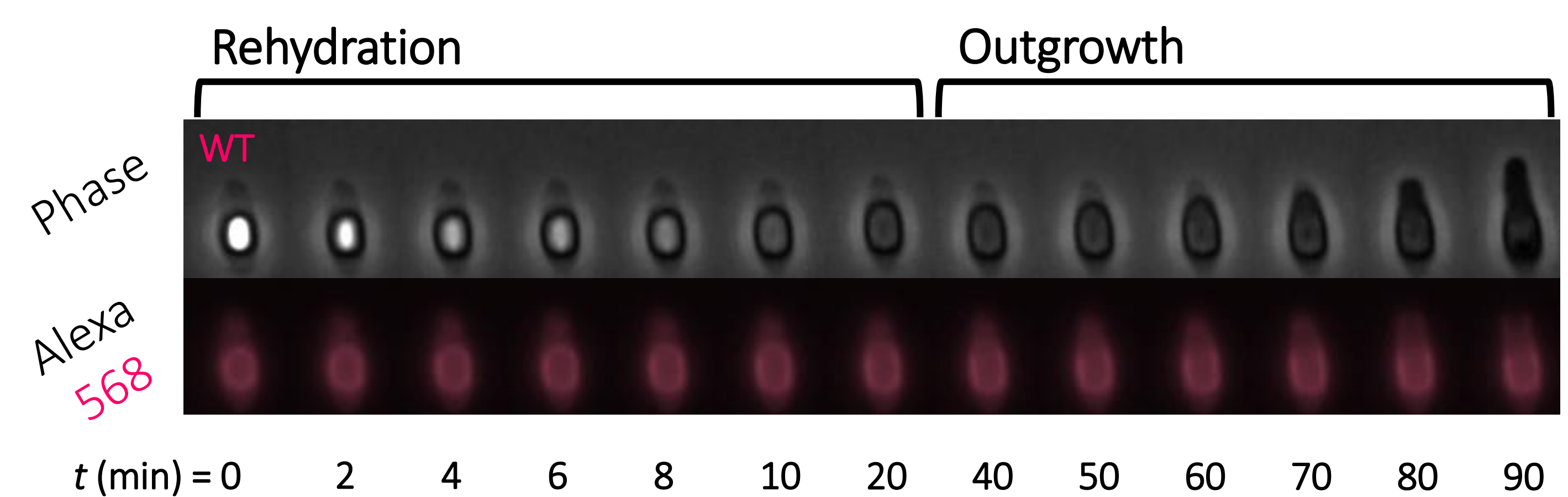
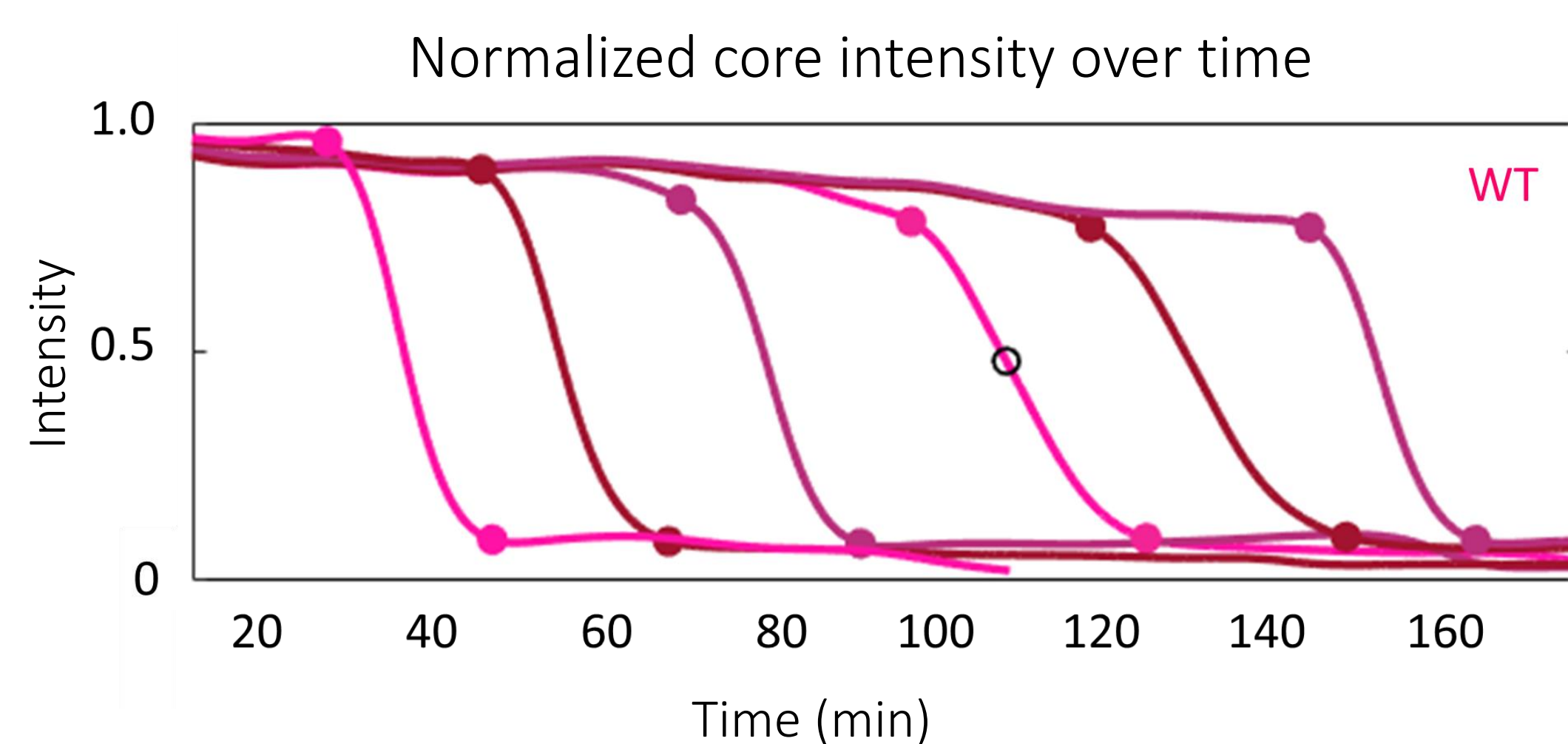
All experiments in this work were conducted using a Don Whitley scientific anaerobic workstation.



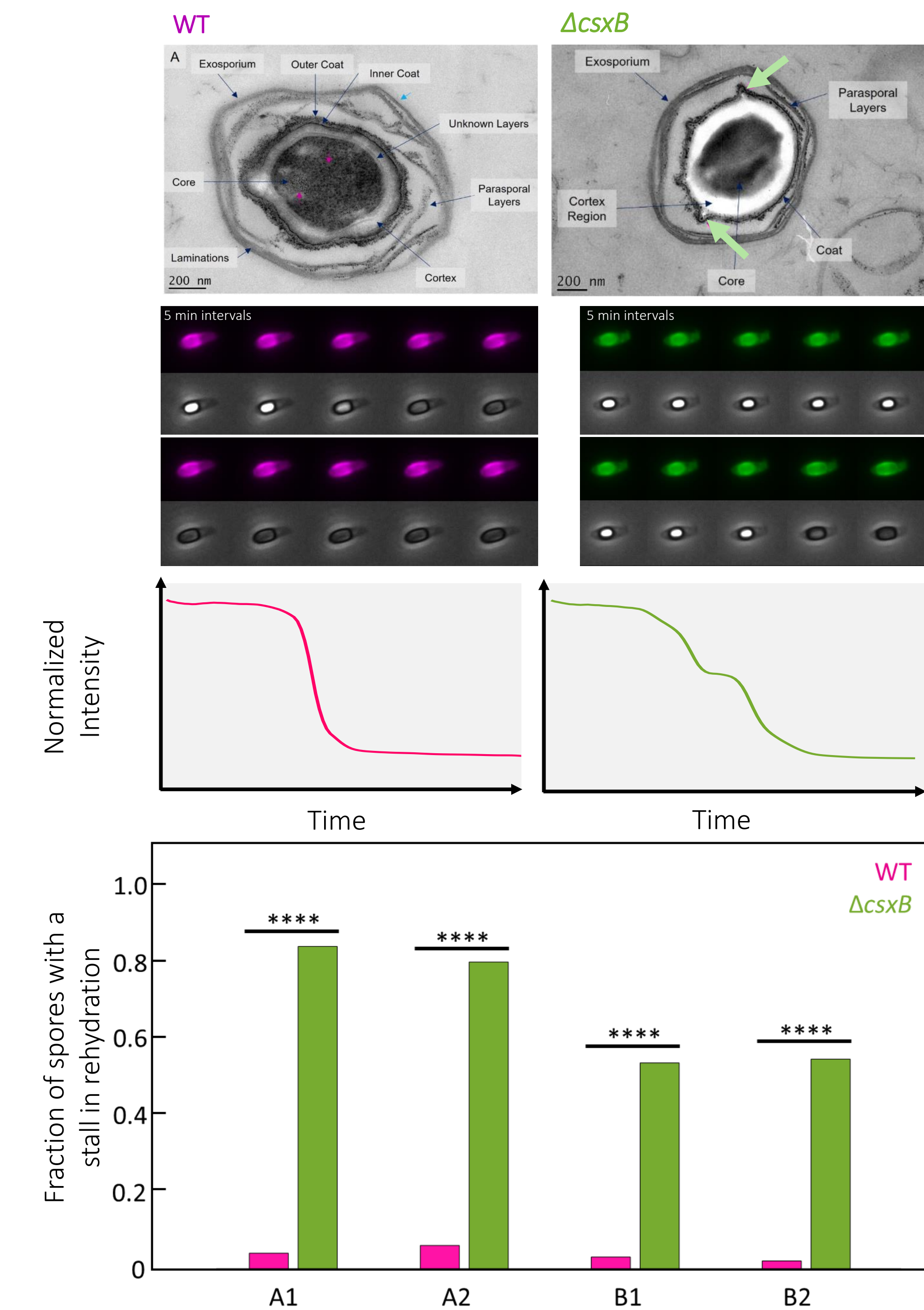
Spore outer layers



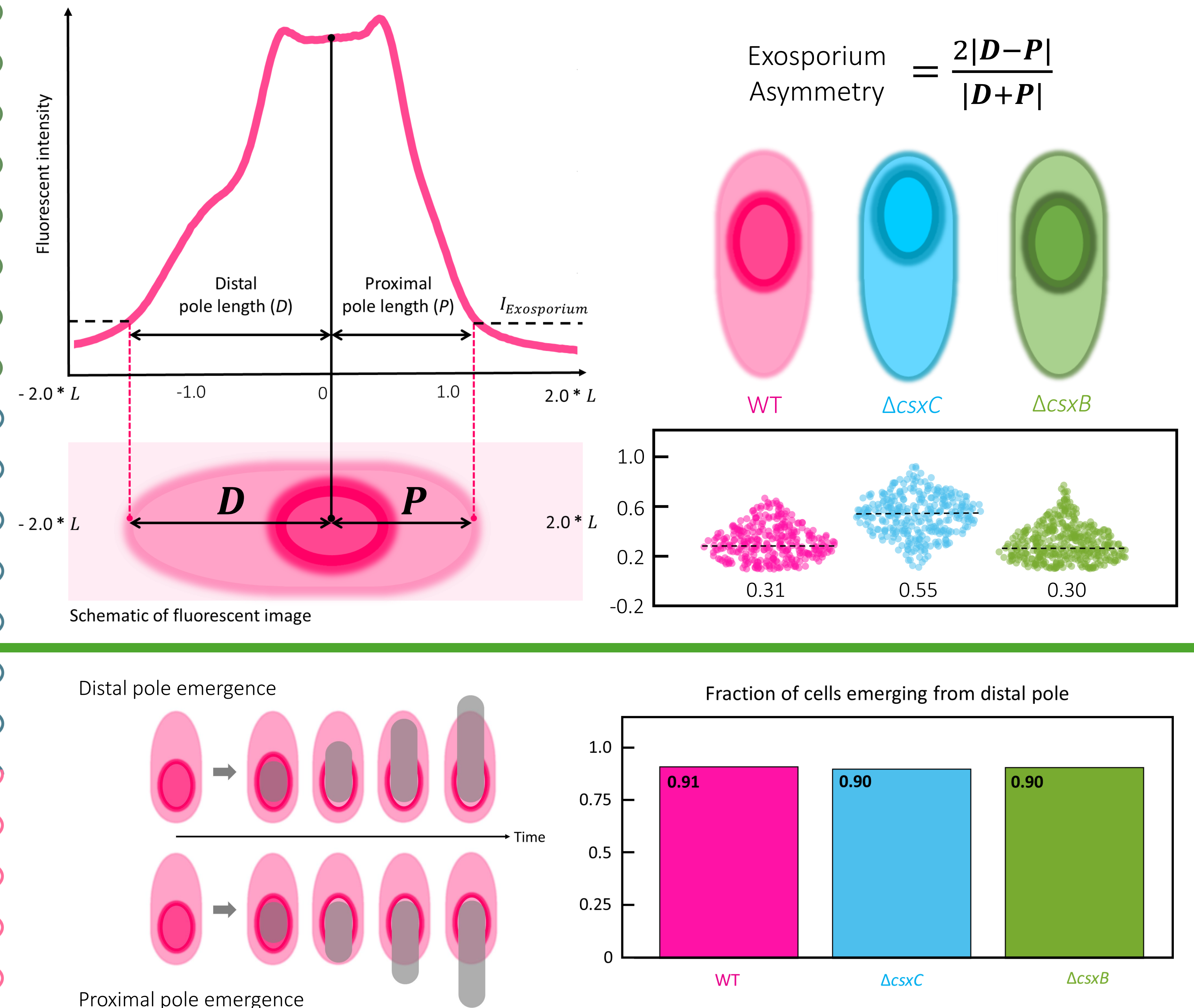
Rehydration Analysis



Stalls during rehydration



Fluorescent analysis of the exosporium



Future Work

Locating the CsxB protein within the spore coat using fluorescent localization is a crucial next step in understanding the role it plays in spore germination.

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