Plasticity and Epigenetics Discussion Questions

Leaders: Elaine and Kevin

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During this discussion period, we want to address the following questions. We will ask for a volunteer to answer each question, so please be prepared to explain at least one!!

1. How can plasticity be adaptive or non adaptive? Give examples from the three papers
2. How does Figure 1 in Ghalambor et al. 2015 show rapid evolutionary divergence?
3. What is the importance for analyzing CpG, CHH, and CHG regions? What are the differences between each?
4. CpGs are more differentially methylated than CHH regions (Fig 2C and 2D; Ryu et al. 2018). Why and how does this affect transgenerational plasticity?
5. What ecological reason(s) can you think of to explain why general growth and stress responses were more differentially methylated than biomineralization-related pathways (despite the measured phenotypic changes to porosity, calyx, and cell size)?
6. What are the potential problems when relating single epigenetic mechanisms (i.e. DNA methylation) to phenotype?
7. Can we directly compare the Ryu and Liew results? What is different in their study system that could make it difficult to compare epigenetic influences on phenotype?