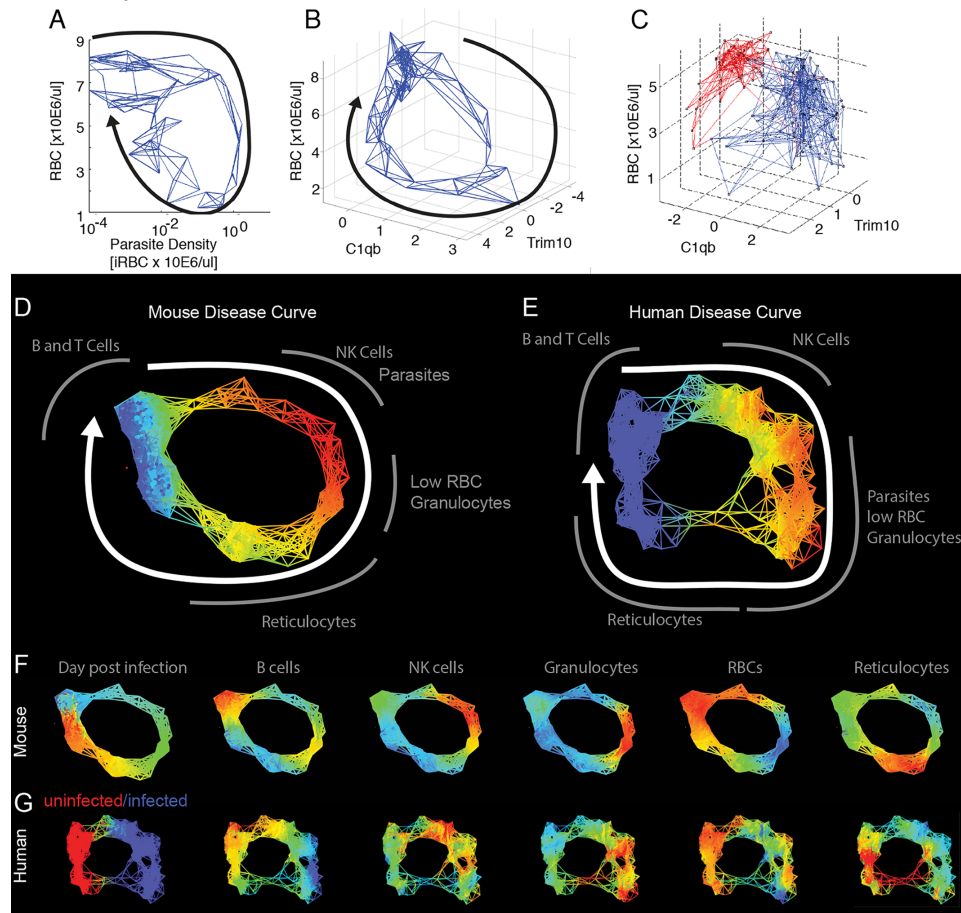


3.3. Parametrizing Disease Space. When animals such as mice and humans get sick and recover, their bodies go through a cycle of states (with respect to variables such as red blood cell count (RBC) and reticulocyte levels). It is useful to be able to identify where a patient is in this cycle because a patient who is recovering may not require much treatment, while a patient with similar symptoms who is early in the cycle of illness might require aggressive treatment.

The goal of this project is to create a function taking physiological data and predicting where one is in the infection cycle.



Places to start:

- (1) Skim the paper, paying particular attention to the abstract, author summary, and Figure 3.
- (2) Download the mouse data used in Figure 3 (S5 Table).
- (3) Select some parameters from this data and compute persistence. Do you get a circle?
- (4) Use circular coordinates to parametrize the circle

References.

- (1) Tracking Resilience to Infections by Mapping Disease Space, B. Torres, et. al., <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002436>