Egg P bodies protect maternal gene messages

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A cell decides what proteins to make based on the messages it receives from its genome. Sometimes messages are held back to be read later, and in most cell types these delayed messages are stored and eventually marked for destruction in P bodies (processing bodies). P bodies in worm egg cells, however, are message protectors, according to a paper by Boag et al. to be published in the Aug 11th issue of the *Journal of Cell Biology*. In a separate study Noble et al. report that worm eggs have different flavors of P bodies depending on developmental stage.

Boag et al. showed that P bodies in eggs lack a degradation protein called Pat1 that is present in the P bodies of other cells of the body. The eggs contain large numbers of maternally-derived gene messages (mRNAs), which won't be read until the egg is fertilized and the embryo starts to develop. By keeping their P bodies Pat1-free, eggs thus ensure their maternal messages stay safe until they are needed.

Noble et al. showed that eggs in fact have a whole range of specialized P bodies. They identified at least three types of P bodies arising at different stages of egg development, and a fourth type in embryos, each with a distinct set of proteins. Although Noble et al. weren't looking for Pat1 protein, they did find that two of the P body types that appear early in egg development lack a different degradation protein, DCAP-2, in line with the observations of Boag et al.

The different types of P bodies most likely have different functions, but they do appear to interact with one another, indicating that they might be exchanging mRNAs.

Source: Rockefeller University