

## Deciphering Gene Expression Patterns

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Large-scale studies in various model systems including *Drosophila*, fish, and the mouse have documented the exquisite temporal and spatial expression patterns of thousands of genes during development—making sense of it all is a major challenge in the field. The study by Yakoby and colleagues illustrates how very different expression patterns can be generated from a small number of initial patterns. By examining expression patterns for a large number of genes in the *Drosophila* follicle cell epithelium, the authors proposed that the various expression patterns could be explained by a simple combinatorial code based on six spatial building blocks and the operations of union, difference, intersection, and addition. Importantly, the six spatial building blocks can be linked to the activity of the epidermal growth factor receptor and bone morphogenetic protein signaling pathways that control gene expression along the dorsoventral and anteroposterior axes. A challenge for the future will be to see whether such a powerful approach can be applied to explain the diversity of patterns generated in more complex systems such as embryos.

This PaperPick refers to “A Combinatorial Code for Pattern Formation in *Drosophila* Oogenesis” by N. Yakoby, C.A. Bristow, D. Gong, X. Schafer, J. Lembong, J.J. Zartman, M.S. Halfon, T. Schüpbach, and S.Y. Shvartsman, published in November 2008.