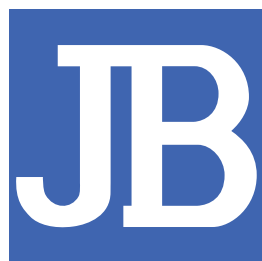


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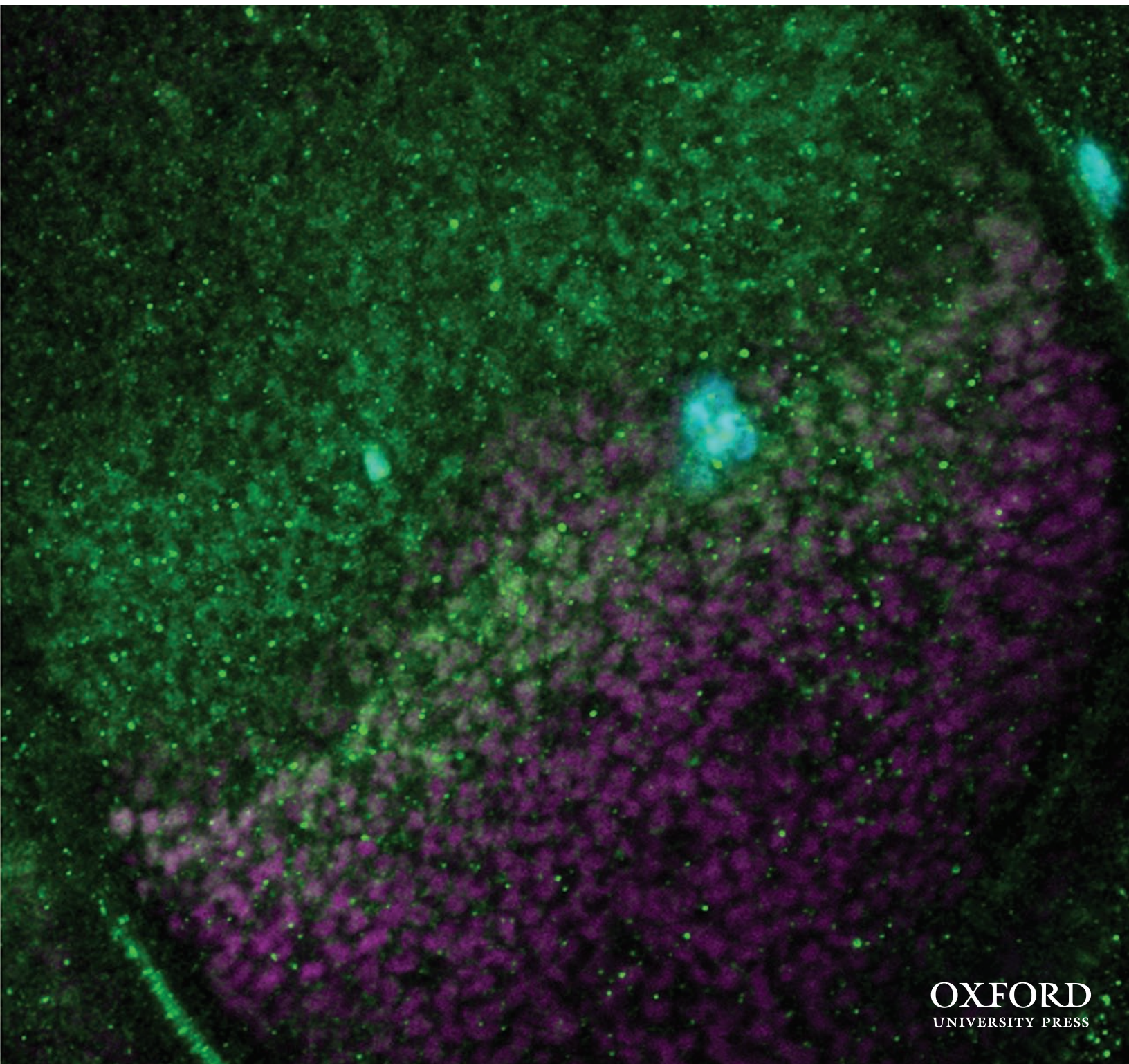


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- RNA Processing
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Extracellular Matrices and Cell Adhesion Molecules
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Author Index

- Bao Y., 199
Crimmins D.L., 157
Emoto K., 133
Harada N., 209
Hata S., 199
Hata Y., 199
Hirano A., 165
Ikeda M., 199
Inouye K., 123, 183
Ishigami-Yuasa M., 199
Itoh K., 209
Kaikai S., 189
Kao J.L.-F., 157
Kohno M., 173
Kojima K., 123
Kosaka K., 209
Kurata S., 143
Lili J., 189
Maruyama A., 209
Mimura J., 209
Mokudai T., 173
Muta Y., 183
Nakagawa K., 199
Nishina H., 199
Niwano Y., 173
Okuno Y., 199
Qin L., 151
Sato E., 173
Satoh K., 209
Satoh T., 209
Shiraki K., 165
Suzuki-Inoue K., 127
Takai E., 165
Tao L., 151
Wang Y., 151
Wang Z., 151
Withanage K., 199
Yamamoto M., 209
Yang Z., 199
Yano T., 143
Yoshida H., 209
Yuchen S., 189
Zhengtao W., 189

COVER:

Discovery in Japan

Decapentaplegic (Dpp) is a *Drosophila* homologue of bone morphogenetic proteins, which plays an essential role in development as a morphogen that patterns the embryo and adult. Upon binding to specific receptors, Dpp activates Mothers against dpp (Mad), a receptor-activated Smad in *Drosophila*, leading to complex formation of Mad with Medea, the *Drosophila* common-mediator Smad (1). Dr. Tetsuya Tabata and his colleagues discovered Daughters against dpp (Dad), whose transcription was induced by Dpp signaling (2). They revealed that Dad antagonizes the activity of Dpp and serves as an inhibitory Smad in *Drosophila*. Dpp thus induces expression of its own antagonist, Dad, and regulates the magnitude and duration of its signaling.

Clones of cells expressing Dad were induced in the *Drosophila* wing imaginal disc (marked by GFP, cyan). The disc was stained for phosphorylated Mad (green) and Engrailed (magenta). Ectopically expressed Dad inhibits phosphorylation of Mad and promotes elimination of the expressing cells. The images were acquired with the Zeiss 710 confocal microscope.

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2. Tsuneizumi, K., Nakayama, T., Kamoshida, Y., Kornberg, T.B., Christian, J. L., and Tabata, T. (1997) *Daughters against dpp* modulates *dpp* organizing activity in *Drosophila* wing development. *Nature* **389**, 627–631.