

## Whither *Development* and developmental biology?

The process through which an egg turns into an embryo and then into an adult has long fascinated developmental biologists. The last 25 years have seen huge advances in our understanding of this phenomenon, and even if the problem has not been 'solved', the optimism expressed by many after the discovery of Hox gene collinearity (the 'Rosetta Stone' of developmental biology) may indeed have been justified. To get an idea of how far we have come, just take a look at the last few issues of *Development's* predecessor, the *Journal of Embryology and Experimental Morphology (JEEM)*, and compare the papers there with those published in this issue! (And if you can't easily get your hands on a copy of *JEEM*, you'll no doubt be pleased to hear that the digitisation of *JEEM* is now under way; we hope to have its full archive made freely available online at *Development's* website within the year.)

But where do we go from here? What kinds of papers should *Development* be publishing now if it is to continue to provide readers with important and novel insights into the mechanisms of development? It is a difficult question to answer, but it is one that we, and our colleagues, ask ourselves each time a paper is submitted to the journal. As regular authors, reviewers and readers will know, purely descriptive papers tend not to fare well at *Development* because such papers rarely shed light on developmental mechanisms. A description of a 'knock-out' phenotype that fails to provide an insight into how that phenotype might have arisen is one example of such a paper. To save the valuable time of authors and reviewers, we frequently return these and other descriptive papers without review.

Have a look at this and at recent issues of *Development* to see the kinds of papers we do consider to be important and go on to publish. The impact factor of *Development* has recently been increasing (while those of our competitors have generally been decreasing); so, by this criterion, we think we are accepting papers that report significant findings in the field. However, like any journal, we need to think ahead. What will be the most exciting areas in development over the next few years, and how can we make sure that they are published in *Development*? This, to some extent, is of course a matter of opinion, but we believe that techniques and approaches borrowed from cell biology and from bioinformatics are, and will continue to become, particularly important for exploring developmental mechanisms, as will be our increasing ability to visualise and to quantitate the events of early development. Soon we will be able to assay how many molecules of a morphogen surround a particular cell, how many receptors are occupied and how many molecules of a transcription factor enter the nucleus. We'll know rates of synthesis and rates of degradation, and diffusion and affinity constants, and with this information we'll be able to create models of development that are predictive rather than descriptive. These models should shed new light not only on developmental mechanisms, but also on the aetiology of disease and how it might be possible to regulate, for example, stem cell differentiation, and even how to drive the morphogenesis of stem cells in the required manner.

As the field evolves, its evolution should be reflected in the research published by *Development* and by its front section, which aims to reflect and, in some cases, to anticipate these changes. We hope that the introduction of new opinion and hypothesis-driven pieces in *Development's* front section this year will stimulate discussions in the field about prevailing ideas and models and so assist with their evolution.

Each of *Development's* scientific editors contributes considerable time and expertise to making the all-important editorial decisions about what we should publish. Over the past year, we've been delighted to welcome to this expert team Matt Scott, Alexandra Joyner and Patrick Tam. Matt is at Stanford University and (among many other things!) is particularly well known for his work on the role of the Hedgehog signalling pathway in development and disease. His studies on human basal cell carcinomas provide a particularly striking illustration of the way in which developmental biologists can make fundamental discoveries in fields such as cancer. Alex Joyner has just moved to the Sloan-Kettering Institute. She is a pioneer in mouse molecular genetics and is interested in neural development, and particularly in the development of the cerebellum. Like Matt, she is interested in the ways in which developmental biology can inform studies of disease, and she focuses on medulloblastomas, which are among the most common brain tumours in children. Based at the University of Sydney, Patrick Tam is best known for his pioneering work on the uses of micromanipulation and embryo culture for exploring the cellular and molecular mechanisms of early mouse development, but his research interests also extend to the development of the neural tube and the embryonic gut, and to X-linked diseases. We are grateful to Patrick for bringing his expertise in mouse development to the journal while Ginny Papaioannou takes a year's sabbatical.

Finally, we would like to welcome the most recent addition to the team (he joins with this issue), Thomas Lecuit. Thomas uses the *Drosophila* embryo to study cell polarity and the cell biological basis of organogenesis. His work exemplifies the direction in which *Development* will be moving, for, as his web site says, he uses a combination of genetic, genomic, biophysical and cell biological techniques and, in particular, the microscopy of living specimens.

This evolution of the journal's scope will complement, rather than replace, what *Development* is best known for: the publication of significant and important findings in the field of developmental biology, irrespective of trends or fashions or hype. We will continue to pay close attention to your feedback and to offer you a fast, transparent and author-friendly service. From the feedback you send us, we know that you like and appreciate this service. What we'd like to do now and in the future is to offer this service more widely, and to continue to draw in areas of research that will complement your own, to provide you with a bigger picture of what is happening in this exciting and fast-moving field.

**Jim Smith (Editor in Chief)**  
**Jane Alfred (Executive Editor)**