

EDITORIAL

Please allow me to introduce myself

James Briscoe^{*,‡}

It is an honour and pleasure to be taking over as Development's new Editor-in-Chief. Let me start by commending and thanking Olivier Pourquié, our outgoing Editor-in-Chief. Over the past 9 years, Olivier has guided the journal from strength to strength. Among his many accomplishments are broadening the scope of Development to include more stem cell biology, establishing a dedicated section for human developmental biology, introducing a prominent home for technical and resource-type papers in the journal, and overseeing the introduction of the Node, our community blog. I'm sure I speak for developmental biologists throughout the field when I express gratitude for his efforts and contributions; Olivier's vision and achievements have not only enhanced the journal but also advanced the field.

Taking over from Olivier is a daunting prospect, but one I am looking forward to. It is an exciting time for developmental biology and Development. During the 20 years or so that I've been a developmental biologist I've seen how the success of developmental genetics has transformed the field from experimental embryology to one of molecular and cellular mechanism. The results have had far-reaching consequences. They offer a deeper understanding of how tissues are formed and maintained; what goes wrong in conditions ranging from congenital disorders to cancer; how damaged and dysfunctional organs might be repaired; and how mechanisms and species evolved.

But the field is again in transition and evolving in new directions – as I and others have recently noted (see 'What Is the Future of Developmental Biology?'). Established methods are being coupled with new *in vitro* systems, as well as non-model organisms, and augmented by novel imaging technologies, genomic analyses and precision genetic engineering. This is providing unprecedented insight and resolution, and stimulating interdisciplinary collaborations with physicists, computer scientists, engineers and clinicians. The questions we ask – 'How is signalling and gene activity controlled?'; 'How does this determine cell function?'; 'How are tissues shaped and organized from these cells?'; 'What is shared and what differs between species?' – are being answered in ways that begin to take us beyond static and qualitative descriptions towards dynamic and quantitative explanations. This bridges scales from molecules to cells to tissues, and is beginning to reveal the principles behind cellular decisions and tissue assembly, as well as the accuracy, robustness and evolvability of these processes. With this new fundamental knowledge of how cells, tissues and organisms are built, we are not only better able to understand disease mechanisms, but are also laying the foundations for regenerative medicine, and offering insight into the evolutionary principles from which the diversity of life arises.

I want Development to reflect the changes in the field by building from its current strengths. We will continue Olivier's work of

embedding stem cell biology and human development studies into the journal. Such studies increasingly include tissue engineering, disease modelling and repair/regeneration studies. Progress in clinical genomics together with induced pluripotent stem cell- and disease-orientated research programmes will make understanding human development and its practical application ever more important. Development offers a trusted and scholarly venue for these studies.

I would like to expand our coverage of genomics/proteomics/metabolomics studies relevant to developmental biology. Systems-level analyses are providing mechanistic insight into long-standing developmental problems and the 'single cell revolution' that we are currently experiencing is already having a major impact on our field. As an example of our commitment to this area, we are currently assembling a special issue focused on single cell developmental biology. Guest-edited by Barbara Treutlein and Allon Klein, the closing date for this issue has been extended to 15 November 2018, and we welcome your submissions – see dev.biologists.org/content/singlecell for details.

Quantitative analysis, mathematical modelling and computational methods are playing ever greater roles in developmental biology. From molecular studies to high-resolution *in vivo* cell biology and tissue-scale behaviours, the physical principles underlying information flow and mechanics during development are being identified. I would like to encourage and support quantitative approaches, and increase the involvement of physical and computational scientists who are addressing developmental biology problems. I believe it's important that we welcome and promote participation of researchers from outside our traditional areas. Development, with its standing in the field and community support, is uniquely well placed to do this.

I am also keen to renew Development's commitment to non-traditional model organisms. The accessibility and tractability offered by new genomics, imaging and genetic engineering technology are having a dramatic and invigorating effect. I see the field moving beyond purely 'evo-devo' questions to addressing mainstream developmental biology questions from novel and informative perspectives.

To help accomplish these aims, I will be refreshing our Editorial Advisory Board over the coming months to ensure the breadth and depth of expertise reflects our changing field. I'm also pleased to welcome two new Editors to Development, Cassandra Extavour and Maria-Elena Torres-Padilla, who replace Nipam Patel and Austin Smith. On behalf of Olivier and myself I would like to thank both Nipam and Austin for their many years of service. Cassandra, who joined the team over the summer, is known for her work on the evolution of the genetic mechanisms in early animal embryogenesis, with a focus on germ-cell development in a comparative context, using a range of arthropod systems. Maria-Elena, who will be starting as an Editor in January 2019, studies chromatin-mediated processes behind changes in cellular plasticity, genome reprogramming and cellular decision-making during the early stages of mammalian development. One of the great strengths of Development are our research-active academic editors, who are

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respected leaders in the field. Cassandra and Maria-Elena join our existing editors, and together they offer informed and considered editorial decisions across the breadth of developmental biology studies.

At the same time as developmental biology is changing, scientific publishing is also in flux. This brings new concerns and challenges, as Olivier has pointed out in his Editorial (Pourquié, 2018). I agree with Olivier's analysis and I see these changes as probably the biggest issue Development faces in the coming few years. But, we're up to the task. Development, with support from The Company of Biologists – our not-for-profit publisher – has always been progressive and forward-looking. In recent years we've introduced innovations such as Open Access options, referee cross-commenting, and we've embraced preprints by establishing preLights as a venue to highlight and comment on noteworthy preprints. We will continue to stay on top of changes and trends within scientific publishing. For example, we hope next year to begin publishing referees' comments alongside accepted papers in our continuing efforts to improve the transparency and quality of peer review – more details on this will follow as our plans become finalised.

But Development is more than the journal, it is all of us – the community of researchers, referees, authors and editors. We all have similar interests and share a common purpose. Through the not-for-profit charitable work of The Company of Biologists, Development has been able to support many of the people, ideas and activities associated with developmental biology. Not only has this allowed us to establish the Node and preLights but also to fund developmental biology societies, workshops and meetings that underpin and advance the field. In total, The Company of Biologists' charitable

activities total over £1 million per year – money that supports science and scientists in many different ways. An example of this is the Travelling Fellowship scheme run by Development (see www.biologists.com/travelling-fellowships/ for details). This is designed to fund graduate students and post-doctoral researchers that want to visit other laboratories for periods of a few weeks to a few months to pursue collaborative projects. There is no restriction on nationality and the next application deadline is 30 November 2018. We will continue to use our charity to promote the developmental biology community and support our research. My goal is to ensure Development is not only the leading source of science in the field, but also enlists a new generation to the field, renewing our community and instilling fresh dynamism.

Let me conclude with one last thought. Throughout my career, Development has been the 'journal of record', supporting and shaping the field. My hope and ambition is that this continues. But for this to happen I need your support. I need you not only to continue reading Development but to referee papers when asked, and, most importantly, to submit your papers to Development. With your papers and your support, the journal and the field will continue to flourish. Today, the importance and influence of developmental biology has never been greater. Working together, we can build on our strengths and forge ahead in new directions, and Development will continue to lead the field and inspire the next generation of developmental biologists.

References

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