

# nature cell biology

## An integrative future

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The changing face of cell biology is reflected in the types of institute now being established. Last month marked the inaugural meetings of two cases in hand — the Max Planck Institute of Molecular Cell Biology and Genetics in Dresden, Germany (<http://www.mpi-cbg.de/>), and the Systems Biology Institute in Seattle, Washington (<http://www.systemsbiology.org/>).

The meeting in Dresden, entitled ‘From molecules to tissues’, mirrors a primary aim of the institute — to marry developmental genetics with cell biology, and, as the director Kai Simons says, “to study the machinery that cells have at their disposal to change during development”. The strengths that can be drawn from this interface were well voiced by one guest speaker, Johnathan Knowles (Director of Research for Roche), who commented that “genetics tells you what is really important, and molecular cell biology tells you how it works”. Many of the speakers emphasized the importance of cross-discipline communication between biological studies and the high-throughput analysis that is now being carried out by many proteomic and structural genomic initiatives.

The lab heads recruited at the institute so far include cell biologists (with particular strengths in membrane trafficking), biophysicists and developmental geneticists. The intended aim is to induce a collaborative environment between the labs within the institute and with other centres that are being planned for the area — these include a centre for bioinformatics and computational biology, and a bioinnovations centre.

Another key goal is “to provide a gateway to integrate scientific activities in Eastern European countries with those of the rest of Europe”. To this end, an international PhD graduate programme has been set up with emphasis being given to students from Central and Eastern Europe, the response to which has been more than encouraging. Collaborations have also been established with the Institute of Molecular and Cell Biology in Warsaw, Poland.

### Systems in place

March also marked the first symposium of another institute with a forward-thinking integrative approach — the Systems Biology Institute in Seattle. Originally founded in 2000 by Leroy Hood, Ruedi Aebersold and Alan Aderem, this inaugural meeting celebrated the opening of the institute’s new facility. Here, cell biologists and immunologists are teaming up with computer scientists, chemists and engineers. The environment created is one that not only “encourages collaboration among scientists, but requires it”. Similar to the Max Planck Institute in Dresden, collaborations are also being established outside the institute with both academic departments and companies.

“Now that we have established the logic of cell function, our challenge is now to extend insights obtained at the single-cell level into the organization of tissues, the function of complex systems, and most importantly, the cellular basis and therapy of human disease”, says Ira Mellman, Yale University. Computational cell biology will be integral in this, predicts Robert Phair at the Bioinformatics Services, Maryland: “In my view, we’re approaching a watershed in the relationship between experimental and computational cell biology”. With the insights being shown in the creation of new research institutes, this should be facilitated with greater ease. □