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A series of spheres with two-dimensional patterns generated by computer simulation shows that Turing's reaction-diffusion model may be the basis for skin patterning in animals. A modulation of one parameter value in a reaction-diffusion-based model causes the pattern to change gradually from spots to labyrinths, with the range encompassing the diversity of patterns seen on animal skin. See page 171 and http://scim.ag/comp_bio.

Image: Seita Miyazawa, Osaka University

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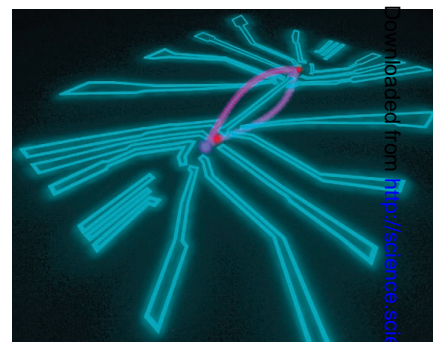
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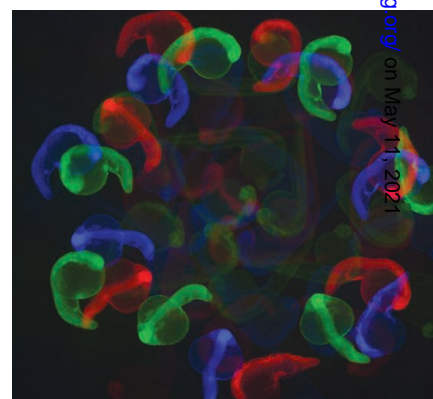
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SCIENCEONLINE

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Mechanical Control of Morphogenesis by Fat/Dachsous/Four-Jointed Planar Cell Polarity Pathway

F. Bosveld et al.

Polarized protocadherin and myosin induce an anisotropic tension at cell junctions and thereby shape epithelial tissue.

10.1126/science.1221071

>> *Computational Biology section p. 171*

Differential Diffusivity of Nodal and Lefty Underlies a Reaction-Diffusion Patterning System

P. Müller et al.

The inhibitor Lefty diffuses more widely than the activator Nodal.

10.1126/science.1221920

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Epigenomic Enhancer Profiling Defines a Signature of Colon Cancer

B. Akhtar-Zaidi et al.

Methylation tags at long-distance gene regulatory elements provide a signature specific to cancer cells.

10.1126/science.1217277

A Dive to Challenger Deep

R. A. Lutz and P. G. Falkowski

10.1126/science.1222641

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Signatures of Majorana Fermions in Hybrid Superconductor-Semiconductor Nanowire Devices

V. Mourik et al.

Theoretically predicted particles that double as their own antiparticles emerge in a superconductor-coupled indium antimonide nanowire.

10.1126/science.1222360

Growing Microtubules Push the Oocyte Nucleus to Polarize the *Drosophila* Dorsal-Ventral Axis

T. Zhao et al.

The addition of tubulin monomers to microtubules provides the force to relocate the oocyte nucleus.

10.1126/science.1219147

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Highlights From Our Daily News Coverage

Land Bridge Caused Wild Temperature Swings

The strip of earth connecting Asia and North America disrupted ocean circulation.

http://scim.ag/Temperature_Swings

Of Robots and Cocktails

A humanoid machine helps researchers understand how we home in on conversations.

http://scim.ag/Humanoid_Machine

Fishing for Fluid Dynamics

Movement of fishermen's nets helps untangle water-flow patterns in an Italian lake.

http://scim.ag/Fluid_Dynamics

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

10 April issue: <http://scim.ag/ss41012>

RESEARCH ARTICLE: Direct Binding Between Orai1 and AC8 Mediates Dynamic Interplay Between Ca²⁺ and cAMP Signaling

D. Willoughby et al.

A signaling complex enables the compartmentalized regulation of cyclic AMP signaling by calcium entering through a specific channel.

RESEARCH ARTICLE: Ras Stabilization Through Aberrant Activation of Wnt/ β -Catenin Signaling Promotes Intestinal Tumorigenesis

W. Jeong et al.

PERSPECTIVE: Wnt/ β -Catenin and MAPK Signaling—Allies and Enemies in Different Battlefields

D. Guardavaccaro and H. Clevers

Crosstalk between the Wnt/ β -catenin and MAPK pathways contributes to colon cancer.

PODCAST

M. Nedergaard et al.

New findings elucidate mechanisms by which astrocytes can modulate neuronal activity.

SCIENCE TRANSLATIONAL MEDICINE

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Integrating Medicine and Science

11 April issue: <http://scim.ag/stm041112>

EDITORIAL: Toward Precision Medicine—A New Social Contract?

S. Desmond-Hellmann

Patients have the power to drive development of a new taxonomy of disease and precision medicine.

RESEARCH ARTICLE: Adverse Metabolic Consequences in Humans of Prolonged Sleep Restriction Combined with Circadian Disruption

O. M. Buxton et al.

Sleep deficiency and out-of-synch circadian rhythms impair pancreatic insulin secretion, a possible precursor to metabolic syndrome and diabetes.

>> *News story p. 143*

RESEARCH ARTICLE: Model-Based Noninvasive Estimation of Intracranial Pressure from Cerebral Blood Flow Velocity and Arterial Pressure

F. M. Kashif et al.

FOCUS: From Lundberg to SIM-ICP—Computational Physiology and Modeling Intracranial Pressure

B. Goldstein et al.

A model-based, patient-specific, and calibration-free approach is used for continuous, noninvasive estimation of intracranial pressure.

RESEARCH ARTICLE: Prognostic Indicators of Life-Threatening Malaria Are Associated with Distinct Parasite Variant Antigen Profiles

G. M. Warimwe et al.

Two key clinical indicators of life-threatening malaria in African children may be associated with differential expression of parasite surface antigens on infected erythrocytes.

SCIENCE CAREERS

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Free Career Resources for Scientists

Are Computational Biologists the Next Pharma Scientists?

M. Price

Drug development companies are now hiring more computational biologists, creating an abundance of high-paying jobs.

<http://scim.ag/CompBioPharma>

>> *Computational Biology section p. 171*

Going Against the Grain

E. Pain

Graduate student Denis Gebauer had to work hard to prove that his unorthodox findings on crystallization were real.

<http://scim.ag/AgainstGrain>

Swimming With SHARks

R. Kaufman

In a world where research is valued above all, how do teaching and outreach experiences influence careers?

<http://scim.ag/SHARkProject>

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