

1994 (#26, 27, 28)

SPRING 1994 The Evolution of Developmental Mechanisms Edinburgh University

The Spring 1994 Symposium which is being organised by Peter Holland, Michael Akam and Greg Wray will have as its focus conservation and innovation in developmental mechanisms. A detailed programme has yet to be com-

pleted. The BSCB Symposium topic will be **The Cell Biology of Cancer**. Further information about both of these meetings will appear in the Autumn edition of the Newsletter.

SPRING 1994, University of Edinburgh: "The Evolution of Developmental Mechanisms"

The 1994 Symposium is being organised by Peter Holland, Michael Akam and Greg Wray and will take place in Edinburgh. The last time the Society held a Symposium on the the Evolution of Developmental Mechanisms was in 1981. Since that time, the application of molecular biological techniques - in particular, the Polymerase Chain Reaction - has had an enormous impact on this area of research, an impact which will be fully reflected in the programme planned

by the organisers. Confirmed speakers so far include: Chothia (Cambridge), Ingham (Oxford), Adoutte (Paris), Patel (Baltimore), Akam (Cambridge), Wray (Nashville), Holland (Oxford), Coates (Cambridge), Duboule (Heidelberg), Tabin (Harvard), Alberch (Madrid), Sternberg (Pasadena), Wolpert (London), Muller (Vienna). Further details of this meeting will appear in subsequent editions of the Newsletter.

SPRING 1994, University of Edinburgh: "The Evolution of Developmental Mechanisms"

The 1994 Spring Symposium is being organised by Peter Holland, Michael Akam and Greg Wray and will be held in Edinburgh from April 5th to 8th inclusive. The last time the Society held a Symposium on the Development and Evolution was in 1981. Since that time, the application of molecular biological techniques -

in particular, the Polymerase Chain Reaction - has had an enormous impact on this area of research, an impact which will be fully reflected in the programme planned by the organisers. Arrangements for the Symposium are nearing completion and the draft programme is as follows:

April 6th - The Tool Kit for Development

C. Chothia (Cambridge)
J. Engel (Basel)
D. Critchly (Leicester)
F. Ruddle (NewHaven)
M. Scott (Stanford)
P. Ingham (London)
B. Hogan (Nashville)
D. Bowtell (Melbourne)
M. Bate (Cambridge)
E. Coen (Norwich)

Evening Workshop/Discussion

S. Conway-Morris (Cambridge)
A. Andoutte (Paris)

April 7th - Evolutionary Case Studies

N. Patel (Baltimore)
D. Tautz (Munich)
M. Akam (Cambridge)
F. Nijhout (Duke)
G. Wray (Nashville)
P. Sternberg (Pasadena)
P. Holland (Oxford)

April 8th - The Vertebrate Bauplane

M. Coates (Cambridge)
D. Duboule (Heidelberg)
C. Tabin (Harvard)
P. Alberch (Madrid)
E. Boncinelli (Milan)
E. de Robertis (Los Angeles)
G. Muller (Vienna)
L. Wolpert (London)

EDINBURGH • 5-8th APRIL 1994

bsdb

EVOLUTION OF DEVELOPMENT

chothia • engel • ingham • scott
hogan • sternberg • bate • bowtell
coen • deliporta • conway-morris
adoutte • wolpert • ruddle • wray
holland • coates • tabin • alberch
müller • de robertis • tautz
patel • akam • nijhout

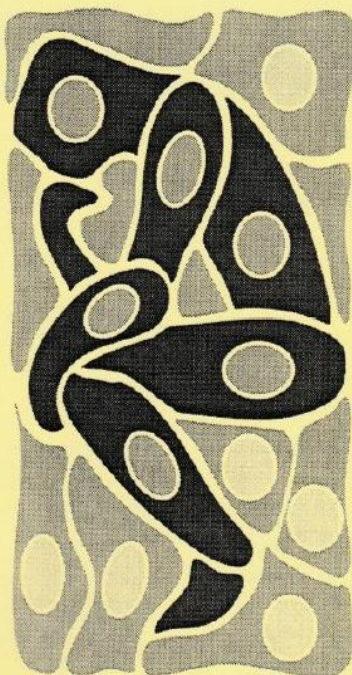
DEVELOPMENT OF THE CEREBRAL CORTEX

la mantia • mc connell • price
lotto • molnar • price • fregnac
thompson

EMBRYOLOGICAL DATABASES

British Society for Developmental Biology / British Society for Cell Biology 1994 Joint symposium.

For further information, contact: "Joint Spring Meeting", MRC Human Genetics, Western General Hospital, Crewe Road, Edinburgh EH4 2XU Fax: 031 343 2620



bscb

CELL BIOLOGY OF CANCER

hastie • hooper • gruss
bryant • ponder • feigenberg
glover • yanagida • morena
reed • dyson • peters • lane
pawson • massague • nishida
roussel • ridley • critchley
karsenti • hall • parsons

EXTRACELLULAR MATRIX

burgeson • ekblom • humphries
lander • mc mahan • murphy
hynes • streuli • watt

Spring Symposium 1993

"The Evolution of Developmental Mechanisms"

Venue: University of Edinburgh

The Spring 1994 Symposium entitled **"The Evolution of developmental mechanisms"** will take place at the University of Edinburgh from **Tuesday 5th April to Friday 8th April**. As usual, the Symposium will run concurrently with that of the British Society for Cell Biology.

The last time the Society held a Symposium on the the Evolution of Developmental Mechanisms was in 1981. Since that time, the application of molecular biological techniques - in particular, the Polymerase Chain Reaction - has had an enormous impact on this area of re-

search, an impact which is fully reflected in the exciting programme.

The main **BSCB symposium** is entitled **"The Cell Biology of Cancer"**. In addition to the two main Symposia there will be a joint Poster Session and parallel workshops on **"Development of the Cerebral Cortex"** (BSDB), **"Extracellular Matrix"** (BSCB) and **"Embryological Data Bases"** (BSCB/BSDB)

A **Booking Form** and **Abstract Form**, can be found in the 'Centre Section' of the Newsletter. The full scientific programme appears on the following pages.

"The Evolution of Developmental Mechanisms"

Scientific Organisers: Michael Akam, Peter Holland and Greg Wray.

Tuesday April 5th

Evening (8-10pm) Metazoan phylogeny workshop

Simon Conway-Morris	Cambridge	The metazoan radiation: Paleontological evidence
Andre Adoutte	Paris	The metazoan radiation: Molecular evidence

Wednesday April 6th

9-10am BSCB Plenary Lecture

Richard Hynes	Cambridge (Mass)	Fibronectin
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Morning session: 10.30- 13.00 Conservation and divergence at the molecular level

Cyrus Chothia	Cambridge	Protein families in the metazoan genome
Jurgen Engel	Basel	Domain organizations of extracellular matrix proteins and their evolution
Philip Ingham	London	The <i>hedgehog</i> gene family in vertebrate and invertebrate development
Matthew Scott	Stanford	Downstream of the homeobox genes: The control of morphogenesis

Afternoon session 14.00-17.30 Evolution and development at the cellular level

Brigid Hogan	Vanderbilt	Growth factor families in development
Paul Sternberg	Caltech	The evolution of cell lineage in nematodes
Michael Bate	Cambridge	Muscle patterning and specification in vertebrates and invertebrates

David Bowtell	Melbourne	Making eyes
Enrico Coen	Norwich	Controlling the diversity of flower development

Thursday April 7th

9 - 10 a.m. BSDB Plenary Lecture

Denis Duboule	Geneva	Hox genes, temporal colinearity and the vertebrate body plan
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Morning session 10.10-13.00

Development and evolutionary radiation of invertebrates

Lewis Wolpert	London	The origins of developmental mechanisms
Frank Ruddle	Yale	Evolution of Hox gene clusters
Greg Wray	Stonybrook	Echinoderm development
Peter Holland	Oxford	The origins of vertebrate development

Afternoon session 14.00-17.30

Development and evolution of vertebrates

Michael Coates	Cambridge	The origin of the vertebrate limb
Cliff Tabin	Harvard	Why we have five fingers
Pere Alberch	Madrid	Evolutionary changes in limb patterning
Gerd Müller	Vienna	The developmental origin of evolutionary novelties
Eddy de Robertis	Los Angeles	Comparative analysis of early vertebrate development

Evening session

Poster Session and Conference Dinner

Friday April 8th
9 - 10 a.m. BSCB Plenary Lecture

Tony Pawson	Toronto	Title to be announced
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Morning session Arthropods and Segmentation
10.10-13.00

Diethard Tautz	Munich	Development of long and short germ insects
Nipam Patel	Baltimore	Arthropod segmentation
Michael Akam	Cambridge	Hom/Hox genes and arthropod development
Frederik Nijhout	Duke	Development and evolution of butterfly wing patterns

BRITISH SOCIETY FOR CELL BIOLOGY SYMPOSIUM
"The Biology of Cancer"
Wednesday April 6th

N. Hastie	Edinburgh	Wilms tumour- a paradigm for the cancer development relationship
M. Hooper	Edinburgh	Role of the p53 and Rb genes in cancer, development and apoptosis
P. Gruss	Göttingen	Pax genes in development and cancer
P. Bryant	Irvine	Tumour suppressor genes in <i>Drosophila</i>
B. Ponder	Cambridge	Multiple endocrine neoplasia type 2A is caused by mutation in the Ret protooncogene
A. Feinberg	Ann Arbor	Imprinting of human genes and relaxation of imprinting in embryonic tumours

Thursday April 7th

M. Yanagida	Kyoto	Control of mitosis
S. Morena	Salamanca	ruml and S-phase control in <i>S. pombe</i>

S. Reed	La Jolla	control of the G1/S phase transition in yeast and animal cells
E. Karsenti	Heidelberg	Microtubule dynamics and the cell cycle
N. Dyson	Charlestown	The partners and homologues of the retinoblastoma protein
G. Peters	London	D-type cyclins and their role in tumorigenesis
D. Lane	Dundee	DNA damage and the p53 supressor gene

Friday April 9th

J. Parsons	Virginia	SH2/SH3 Domains, FAK and non-receptor kinases
M. Roussel	Memphis	CSF-1 receptor, cell cycle and myc expression
A. Ridley	London	Rho, Rac, the actin cytoskeleton and scatter factor
J. Massague	New York	The TGF- β Family

BSDB Workshops

Tuesday 5th April: Metazoan phylogeny

S. Conway-Morris	Cambridge	The metazoan radiation: Paleontological evidence
A. Adouette	Paris	The metazoan radiation: Molecular evidence

Thursday 7th April: Development of the Cerebral Cortex

A-S. LaMantia	Duke	PAX genes, retinoid induction and differential cell adhesion in forebrain rudiment formation
S. McConnell	Stanford	Cell commitment, cell cycle and cell migration during cortical development
J. Price	London	Cell lineage in cortical development
B. Lotto	Edinburgh	Trophic, tropic and growth promoting interaction in the development of cortical innervation
Z. Molnar	Oxford	Multiple mechanisms in the establishment of thalamo cortical innervation

D. Price	Edinburgh	Mechanisms of development of cortical association connections
G. Goodhill	Edinburgh	Theoretical modelling of the development of cortical afferents
Y. Fregnac		The role of temporal correlation between pre and postsynaptic activity in the developmnet of visual receptive fields

Friday 8th April: Embryological Databases

D. Davidson & R. Baldock	Edinburgh	Mouse anatomy and gene expression
R. Durbin	Cambridge	Nematode genome and development
V. Hartenstein	Los Angeles	<i>Drosophila</i> embryonic organisation
E. Linney	Duke	3D NMR images of mouse embryos
J. Nadeau	Bar Harbor	Mouse gene expression
J. Wassom	Oak Ridge	Transgenic mice

BSCB Workshop

Wednesday 6th April: Extracellular Matrix

P. Ekblom	Uppsala	Basement membrane components as regulators of epithelial cell differentiation
M. Humphries	Manchester	The interactions of integrins with molecules of the extracellular matrix
A. Lander	Cambridge, Mass.	Molecules and mechanisms in neuron-extracellular matrix interactions
J. McMahan	Palo Alto	The agrin protein family: Structure, function and evolution
G. Murphy	Cambridge	The role of proteinases in extracellular matrix remodelling
G. Streuli	Manchester	The regulation of gene expression in mammary cells by laminin
F. Watt	London	Cell-extracellular matrix interactions modulating keratinocyte differentiation

MEETING REPORT

The Evolution of Developmental Mechanisms

University of Edinburgh, April 5th - 8th 1994

Different species vary in their embryonic development, as one would expect given the morphological diversity in the animal and plant kingdoms. This seemingly obvious fact is sometimes overlooked in developmental biology, however, where similarities are currently all the rage. Homologous genes, for example, are widely used as entry points into understanding development. These underscore the common processes utilized in embryonic development, but can rarely explain how differences came about. Attempts to understand evolution require additional approaches, as was reported at the BSDb Spring conference on Evolution and Development, held in Edinburgh in April 1994.

Highlights of the experimental studies reported include work on nematodes, amphioxus, insect and sea urchins. Paul Sternberg reported on Ralf Sommers' comparison of vulval development in different nematode species. This appears to be a promising way to learn what molecular mechanisms underlie a morphological change, because the various species appear amenable to the molecular and genetic tools used on *C. elegans*. One report which did suggest what molecular changes accompanied the innovation of new features was presented by Peter Holland. He proposed, based on work in amphioxus, that gene duplication in the Msx complex may have been involved in the innovation of cranial structures in vertebrates. In the insect world, as reported by Nipam Patel and Diethard Tautz, attention is focused on evolutionary relationships between the short, long and intermediate germ band insects, with homology cloning and com-

parison of expression patterns being the approach of choice. Among those working on evolution in sea urchins, the question of how the larval stage was lost multiple times during evolution was discussed.

One feature of the meeting, remarked upon by several visitors from the US, was the high level and quality of audience participation. In fact, the level of audience interest in the talks on evolution clearly exceeded the expectations of the organizers. The opening workshop on metazoan phylogeny, for example, was held in a room designed to hold 30 people, not the 200 who showed up! Even the main sessions were held in lecture theatres too small for the numbers that wanted to get in. Posters were also given inadequate attention, with only one evening session being allocated. The posters were placed far away from the lecture halls, and could not be viewed during breaks from talks.

Aside from these glitches, many other aspects of the meeting were enjoyable. Edinburgh itself is an excellent place to hold the meeting, being in a city preferable to isolated campuses, especially as the choice of food is then much wider. In this case however, the conference meals served at Teviot Place were very good and did not drive delegates elsewhere looking for sustenance. The conference dinner, and the following ceilidh, provided nice touches of Scottish culture.

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