### anastomosis | july 2015

editor raj ettarh deputy editor jean o'connor •

Newsletter of the Anatomical Society. Structure, Development, Evolution, Function news • education • research • images • journals • events • meetings • reports

**Published** monthly

Welcome to the July issue of Anastomosis. In this issue, we bring you the latest news from our members and keep you updated on upcoming deadlines. We also highlight some interesting news articles from the past month.

### **Deadlines**

Mark your diary!

The initial announcement for the 7th International Symposium of Clinical and Applied Anatomy in Bratislava, Slovakia in September 2015 has been published. You can read more about the symposium at www.iscaa2015.sk

The first call for the 7th Asia Pacific International Congress of Anatomists to be held in Singapore from 17-20 March 2016 has been published. Themes for the meeting cover all aspects of anatomy including simulation, virtual reality and 3D printing. Abstract submission deadline is 15 November 2015.

### People

### Symington Bequest Awards 2015 - Round 5

Karen Breneman - for participation in the 7th International Symposium of Clinical and Applied Anatomy (ISCAA), 17-20 September 2015, Bratislava, Slovakia.

Alan Ryan - for participation in the Tissue Engineering & Regenerative Medicine International Society World Congress, 8-11 September 2015, USA.

### **Departmental Seminar**

Graham Burton - Cambridge University, Inside-Outside: Challenges and Prejudices, 21 September 2015.

### **Best Image Prize**

Congratulations to Crispin Wiles who has won the Society Best Image Prize with an entry entitled L1 Vertebral Trabeculae. Congratulations also to runner-up Tanya Shaw for the entry entitled Peeling Octopus Sucker.

### **Awardee Reports**

Many thanks to the following for reporting back from their Society-sponsored attendance at meetings: Catherine Hennessy, Lara Fitton, Neven Ebrahim, and Anna Kinsella. You can read all of the reports at http://www.anatsoc.org.uk/Awards/

Journal of Anatomy: walk, don't run – muscling the central pattern generator

### Research

### Remember how hard it is to implement that simple instruction and prevent your limbs from running? We all appreciate the difference between running and walking but the role of the muscle spindle in modulating the pattern that we see is brought to life in a thoroughly fascinating review by Peter Ellaway and colleagues at Imperial College London and Northumbria University Newcastle. The paper entitled "Muscle spindle and fusimotor activity in locomotion" describes the interplay of muscle spindles, and gamma

motor neurons in the wonderfully varied locomotion in cats, and can be read in more detail in the August issue of the Journal of Anatomy at

http://onlinelibrary.wiley.com/doi/10.1111/joa.12299/full

### Aging Cell: are we ready to live forever?

Using available experimental evidence, this central question from research into aging is evaluated by Valter Longo and colleagues from around the world. Participants to a biology and genetics workshop on aging in Erice, Italy in October 2013 discussed diet and drugs as promising approaches to delaying the onset of disease in aging. The outcome of these discussed is presented in a review entitled "Interventions to Slow Aging in Humans: Are We Ready?" which is published in the August issue of Aging Cell. You can read more details at http://onlinelibrary.wiley.com/doi/10.1111/acel.12338/full

### Calendar

August						
$\boldsymbol{s}$	M	T	W	T	F	$\boldsymbol{s}$
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

### **Anatomical Society Re**search Studentships

Applications are currently being invited from prospective supervisors for up to 4 PhD Prize Society Research **Studentships** to be held in departments of anatomical sciences in the UK and Ireland beginning in October 2016. Funding is provided for 3 years to cover student stipend, tuition fees, some project costs, and travel allowance. For more details, see www.anatsoc.org. The closing date for applications is Friday 28th August 2015.

### **Meet the Society Officers**

Want to be able to recognize your Society Officers? Society Membership officer Dr. Gabrielle Finn has created short introductory videos that allow you to do just that. Log on to the society facebook page and meet them.

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### **Graduate Center**

Applications are invited for a PhD Studentship in Forensic Science in the Technology Futures Institute at Teesside University to join a dynamic and innovative research team (Prof. Tim Thompson, Dr Meez Islam and Dr Mark Butler) interested in understanding the diagenetic and decompositional changes occurring within mass graves. Deadline for application: 3 August 2015

### **Support for Student Societies**

The Society provides up to 6 competitive awards to support Student Surgical Societies and Other Student Societies. Applications for maximum funding of £200 are considered on a rolling basis (1 October to 30 September). More details at www.anatsoc.org.uk

### Vacancies

### Job Vacancies

The School of Medicine, College of Medicine & Health at University College Cork is inviting applications for a Senior Lectureship in Anatomy & Neuroscience to teach and examine, have a cutting-edge Neuroscience research programme, and undertake administrative duties in the Department of Anatomy & Neuroscience. Closing date: 30 July 2015

Applications are invited for **Anatomy Demonstrators** at **St George's University of London** to teach at anatomy sessions in the Anatomy Teaching Facility. Applicants must be able to show an interest or qualification in anatomy. Closing date: 1 August 2015

Coventry University College is inviting applications for Hourly Paid Tutors in Health and Life Sciences to deliver outstanding teaching and classroom support in a number of key areas including anatomy/physiology. Applicants should hold a recognised teaching qualification. Closing date: 21 August 2015



Items should reach the editors a minimum of 30 days before the date that the event is scheduled to take place.



If you have any news, events or announcements that you would like to see published in the newsletter, send us an email

# Journal of Anatomy

Volume 227, Issue 2, Pages 103-254, August 2015

### Foreword

103 "Something old, something new, something borrowed, something .... else" A symposium to mark the contribution of Robert W. Banks to the field of mechanosensory neuroscience G. Bewick, R. Durbaba and S. Pyner

#### Introduction

104 Where Anatomy led, Physiology followed: a survey of our developing understanding of the muscle spindle, what it does and how it works

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### **Review Articles**

115 The innervation of the muscle spindle: a personal history *R.W. Banks* 

136 Fibre typing of intrafusal fibres
L.-E. Thornell, L. Carlsson, P.-O. Eriksson, J.-X. Liu, C. Österlund, P. Stål and F. Pedrosa-Domellöf

157 Muscle spindle and fusimotor activity in locomotion *P.H. Ellaway, A. Taylor and R. Durbaba* 

167 Sensory control of normal movement and of movement aided by neural prostheses A. Prochazka

178 The role of muscle proprioceptors in human limb position sense: a hypothesis *U. Proske* 

184 On the distribution of information from muscle spindles in the spinal cord; how much does it depend on random factors?

E. Jankowska

- 194 Synaptic-like vesicles and candidate transduction channels in mechanosensory terminals
- 214 Modulating mechanosensory afferent excitability by an atypical mGluR S. Watson

### **Original Article**

221 Complex impairment of IA muscle proprioceptors following traumatic or neurotoxic injury J.A. Vincent, P. Nardelli, H.M. Gabriel, A.S. Deardorff and T.C. Cope

### Review Articles

231 Some reminiscences on studies of age-dependent and activity-dependent degeneration of sensory and motor endings in mammalian skeletal muscle

R.R. Ribchester

- 237 Stretching the imagination beyond muscle spindles stretch-sensitive mechanisms in arthropods *T.J. Suslak and A.P. Jarman*
- 243 Modelling the mechanoreceptor's dynamic behaviour Z. Song, R.W. Banks and G.S. Bewick

Information on this journal can be accessed at: http://www.journalofanatomy.com

Stereo-pair reconstruction, immunofluorescence, and responses of mammalian muscle-spindle primary endings. See papers by R. Banks and G. Bewick, this issue of Journal of Anatomy; images by Robert Banks, Fiona Shenton, and Manuel Hulliger



