

AMERICAN ASSOCIATION OF ANATOMISTS

Eighty Second Session

BOSTON UNIVERSITY SCHOOL OF MEDICINE

HARVARD MEDICAL SCHOOL

UNIVERSITY OF MASSACHUSETTS

SCHOOL OF MEDICINE

TUFTS UNIVERSITY SCHOOL OF MEDICINE

April 1, 2, 3, 4, 1969

SUMMARY OF PROGRAM

Tuesday, April 1

12:00-8:30	Registration Placement Service	Constitution Room Foyer Kent Room
8:45-5:00	Cajal Club	Commonwealth Room
2:00-4:30	Warren O. Nelson Club	Fairfax Room
8:30 P.M.	I General Session	Grand Ballroom
	RUPERT E. BILLINGHAM Professor and Chairman Department of Medical Genetics University of Pennsylvania "The Fetus as an Allograft"	

Wednesday, April 2

8:00-5:00	Registration Placement Service Commercial Exhibits Ladies' Hospitality	Constitution Room Foyer Kent Room Constitution Room Jefferson Room
8:30-12:30	II Cytogenetics; Embryology: organogenesis Papers 1-15	Gardner Room Fairfax Room B
	III Histology: eye Papers 16-30	
	IV Endocrinology: pancreas, thyroid, adrenal Papers 31-46	Independence Room A

V Regeneration; Histology: connective tissue Papers 47-61	Commonwealth Room
VI Histology: lung, kidney, bladder Papers 62-76	Hampton Room
VII Endocrinology: pineal gland, gonadal regulation Papers 77-91	Fairfax Room A
VIII Neurology: developmental, comparative, spinal cord and peripheral Papers 92-105	Independence Room B
IX Neurology: auditory system, sensory receptors Papers 106-121	Independence Room C

12:30-1:30	Business meeting	Commonwealth Room
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2:00-5:00	X Demonstrations D2-D35	Ballroom Balcony
	XI Symposium I "Neuron-glia relations and the extracellular space in brain"	Commonwealth Room
	XII Symposium II "The life history of the lymphocyte"	Fairfax Room

7:00-9:00	XIII Motion Pictures MP1-MP8	Commonwealth Room
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8:00-11:00	Smoker (Grand Ballroom, Independence Ballroom, Constitution Room)	Ballroom Areas
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Thursday, April 3

8:00-5:00	Registration Placement Service Commercial Exhibits Ladies' Hospitality	Constitution Room Foyer Kent Room Constitution Room Jefferson Room
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8:15-12:30		
XIV	<i>Embryology: fertilization, implantation, extra-embryonic membranes, mammary glands</i> Papers 122-136	Gardner Room
XV	<i>Histology: ear, skin</i> Papers 137-151	Fairfax Room B
XVI	<i>Histology: teeth, salivary glands</i> Papers 152-167	Hampton Room
XVII	<i>Endocrinology: pituitary, hypothalamus</i> Papers 167a-183	Fairfax Room A
XVIII	<i>Hematology: hematopoiesis, thrombosis, spleen</i> Papers 184-198	Commonwealth Room
XIX	<i>Cytology: general</i> Papers 199-211	Independence Room B
XX	<i>Neurology: basal ganglia, thalamus, hypothalamus</i> Papers 212-228	Independence Room A
XXI	<i>Neurology: cytology</i> Papers 228a-244	Independence Room C
1:15-4:45		
XXII	<i>Embryology: early, chemical</i> Papers 245-256	Gardner Room
XXIII	<i>Histology: digestive tract</i> Papers 257-268	Hampton Room
XXIV	<i>Female reproductive system: ovary, uterus</i> Papers 269-282	Fairfax Room A
XXV	<i>Hematology: thymus, lymphocytes, immune reactions</i> Papers 283-296	Commonwealth Room
XXVI	<i>Histology: chemistry, techniques</i> Papers 297-307	Fairfax Room B
XXVII	<i>Neurology: comparative, brain</i> Papers 308-321	Independence Room A
XXVIII	<i>Neurology: spinal cord, spinal ganglia</i> Papers 322-334a	Independence Room B
XXIX	<i>Neurology: visual system</i> Papers 335-349	Independence Room C
4:30-5:30		
XXX	<i>Motion Pictures</i> MP9-MP12	Commonwealth Room
7:00-8:00		
	<i>Reception</i> <i>No-host bar</i>	Harvard Club 374 Commonwealth Ave.

8:00-10:00	<i>Banquet</i>	Harvard Club 374 Commonwealth Ave.
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Friday, April 4

8:00-12:00		
	<i>Registration</i>	Constitution Room Foyer
	<i>Placement Service</i>	Kent Room
	<i>Commercial Exhibits</i>	Constitution Room
	<i>Ladies' Hospitality</i>	Jefferson Room
8:15-12:30		
XXXI	<i>Embryology: teratology</i> Papers 350-364	Gardner Room
XXXII	<i>Histology: intestine, liver</i> Papers 365-378	Hampton Room
XXXIII	<i>Male reproductive system</i> Papers 379-394	Fairfax Room A
XXXIV	<i>Cardiovascular system</i> Papers 395-407	Commonwealth Room
XXXV	<i>Gross Anatomy: physical anthropology, biomechanics, electromyography</i> Papers 408-424	Independence Room A
XXXVI	<i>Histology: connective tissue, cartilage, bone</i> Papers 425-441	Fairfax Room B
XXXVII	<i>Neurology: peripheral nerves</i> Papers 442-458	Independence Room B
XXXVIII	<i>Neurology: cerebral cortex</i> Papers 459-475	Independence Room C
1:15-4:30		
XXXIX	<i>Cardiovascular system: heart</i> Papers 476-487	Commonwealth Room
XL	<i>Histology: muscle</i> Papers 488-499	Fairfax Room A
XLI	<i>Neurology: brain stem</i> Papers 500-510	Independence Room A
XLII	<i>Neurology: cerebellum</i> Papers 511-521	Independence Room B
XLIII	<i>Neurology: limbic system</i> Papers 522-532	Independence Room C

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ABSTRACTS

Abstracts of papers presented at the 82nd meeting of the American Association of Anatomists at Boston, Massachusetts, under the sponsorship of the Boston Area Schools of Medicine, April 1, 2, 3, 4, 1969.

The abstracts are listed in alphabetical sequence by senior author in four lists as follows: papers presented from platform, papers read by title, demonstrations and motion picture demonstrations.

Names of authors who are guests of the Association are marked with an asterisk.

Papers Presented from Platform

ADRIAN*, E. K., Department of Anatomy, The University of Texas Medical Branch, Galveston, Texas. (Introduced by I. H. Blount.) *On the presence of prelabeled cells in the hypoglossal nucleus following transection of the hypoglossal nerve.*

Three injections of tritiated thymidine were given to each of 16 adult female mice at 4-hour intervals. At 16 hours after the last injection the left hypoglossal nerve was transected in 12 of these animals. The animals were sacrificed by intracardiac perfusion of 4% phosphate buffered formaldehyde at either 4, 8, 16, or 32 days after the injury, and the brainstems were prepared for

radioautography. At four days following the injury there were from 4 to 12 times more radioactive cells in the nuclei of the injured hypoglossal nerves than in the right hypoglossal nuclei of the same animals. However, the right hypoglossal nuclei of the injured animals had significantly more labeled cells than were found in the hypoglossal nuclei of the uninjured control animals. Labeled mitotic figures were present in the nuclei of the injured nerves. Labeled cells were still present in large numbers in the nuclei of the injured hypoglossal nerves at 32 days following the injury. Since no tritiated thymidine would have been available at the time of the injury or afterward to

soft tissues. The so-called classical pachyostosis is typical of specific bones in the mammalian order of sea cows. Recent investigations of *Odobenus rosmarus* L. and its extinct ancestors have revealed a different more restricted type of classical pachyostosis, mainly in the forehead of this genus.

Histochemical studies of the soft parts of the sirenian, especially of the Dugong, are of importance for comparison with *Odobenus*. Their histochemistry is of great significance because it enables us to study the histological and biochemical details of this very rare sirenian material. The investigations now under way have two goals: (1) to gain a general understanding of the histochemistry and cytochemistry of as many organs of the two sea cow genera as possible, and (2) to acquire more knowledge of pachyostosis in connection with hematopoiesis and other factors, such as mineral metabolism.

KAISERMAN-ABRAMOF, Ita R., Department of Anatomy, Boston University Medical School, Boston, Massachusetts. *The spines of Pyramidal Cell Dendrites. A Light and Electron Microscope Study.*

Dendritic spines range in length from 0.5 to 3.5 microns, and the average length is 1.9 microns. Morphologically, the spines may be grouped into three types. (1) Stubby spines that do not have a well defined stalk; (2) mushroom-shaped ones with their stems expanding into a large flattened bulb, and (3) ones with a thin stem ending in a spherical or oval bulb. The third type of spine is the most common one. Eighty per cent of the spines of the apical dendrites have this form, and 86% of the spines of the basal dendrites. Most commonly, the spines occur singly, but clusters of either the first or third types are present.

Within the majority of spines is a spine apparatus, which is embedded in a matrix of fine filaments, ribosomes and vesicles (1400-2400 Å). The apparatus occurs in the stalk, the end-bulb or throughout the spine and often has a complex configuration. It is composed of alternating cisternae and dense plaques. In some instances, the cisternae appear to be in continuity with the smooth endoplasmic reticulum of the dendrite. The larger spines may contain more than one apparatus.

Depending upon the size of the spine, the synaptic junctions which they form may have one to five thickenings. (Supported by U.S.P.H.S. grant MB-070116.)

KALLENBACH, Ernst, Department of Anatomical Sciences, University of Florida, Gainesville, Florida. *Fine structure of rat incisor enamel organ during late pigmentation and regression.*

Incisors of adult rats were fixed with glutaraldehyde by perfusion. Enamel organs were dissected free of hard tissues, post-osmicated, and embedded in Araldite.

At the late pigmentation stage, ameloblasts contain many pigment vesicles and longitudinally oriented tonofibrils. Only few ferritin granules

are free in the cytoplasm. No apical labyrinth is present, except for a few membranous profiles containing dense material and instances of micropinocytosis. The tonofibrils extend from the basal desmosomes to specialized half desmosomes at the apical cell border. They may make en passant contact with prominent lateral desmosomes which attach the apices of ameloblasts to each other. In the papillary layer, extracellular spaces are narrow with few microvilli. The cells show many instances of micropinocytosis. Mitochondria in peripherally located cells may have an electron dense precipitate that is not present in other cells.

The discharge of iron containing pigment from ameloblasts apparently occurs quite rapidly and in a form that cannot be observed in the electron microscope.

In regression stage, occasional degenerating cells are seen throughout the enamel organ. Some cells contain autophagic vacuoles and at least a few ferritin granules. Some, apparently non-epithelial, cells show no tonofibrils or desmosomes, but contain large numbers of ferritin granules. They are not separated from the epithelial cells by basal lamina material. (Supported by NIH grant no. DE 02241.)

KALT*, Marvin, Dept of Anatomy, Case Western Reserve University, Cleveland, Ohio. (Introduced by Joseph Grasso) *Cleavage and blastocoel formation in *Xenopus laevis*.*

The process of cleavage and blastocoel formation in *Xenopus laevis* has been studied with the light microscope using aldehyde fixation and Maraglas embedding of study material. Serial sections of staged embryos have revealed that the plane of cleavage was preceded by an extensive area of modified cytoplasm in the animal hemisphere. This cytoplasm condensed to form a diastema, in which furrowing occurred to a point slightly below the inferior boundary of the animal pole cytoplasm. Here a definitive blastocoel was formed during the first cleavage. Little or no extension of the furrow developing from the animal pole was noted once the blastocoel was formed. Furrowing continued externally around the zygote through the vegetal hemisphere, then proceeded internally in a manner different from that observed in the animal hemisphere. To complete cleavage, the vegetal portion of the furrow extended inward to meet the blastocoel. In subsequent cleavages, the first signs of furrowing were observed to occur from the blastocoel outward, rather than from the cortex inward. These observations do not agree with current interpretations of the cleavage pattern in Amphibians. A model is proposed to fit our data to theories currently prevailing in the literature. (Supported by NIH grant no. AM 11896-02.)

KASHIWA, Herbert K., Department of Biological Structure, University of Washington School of Medicine, Seattle, Washington. *Organic-calcium-phosphate spherules in developing bone.*

The osteogenic cells were shown to contain calcium (Kashiwa, Stain Technol., 41: 49, '66)

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