



8th INTERNATIONAL BRACHIOPOD CONGRESS

*Brachiopods in a changing planet:
from the past to the future*



Scientific Program

Milano, 11-14 September 2018
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Tuesday 11th September 2018

08:30-08:50	OPENING CERIMONY
08:50-09:40	PLENARY LECTURE <u>Holmer L. E.</u> , Zhang Z., Zhang Z., Brock G. A., Popov L. E. Brachiopod phylogeny in the Cambrian
09:40-10:00	COFFEE-BREAK
SESSION 1	Systematics and evolution Convenors: Carlson S., Alvarez F. and Jin J.
10:00-10:25	<i>Keynote lecture</i> <u>Butler A. D.</u> , Eitel M., Wörheide G., Carlson S. J., Sperling E. A. Phylogenomic analysis of Brachiopoda: revealing the evolutionary history of biomineralization with an integrated palaeontological and molecular approach
10:25-10:40	<u>Kuzmina T. V.</u> , Malakhov V. V., Temereva E. N. Support of the “brachiopod fold hypothesis” in Recent rhynchonelliform means: a new view on the evolution of brachiopod life cycles
10:40-10:55	<u>Madison A.</u> , Kuzmina T. Fossil records of the evolution of brachiopod life cycles
10:55-11:10	<u>Zhang Z.</u> , Popov L. E., Holmer L. E., Chen F., Zhang Z. Earliest ontogeny of Early Cambrian acrotretoid brachiopods — first evidence for metamorphosis and its implications
11:10-11:25	<u>Chen Y.</u> , Zhang Z., Zhang Z. Geometric morphometric analysis reveals the ontogeny of Early Cambrian (Series 2) brachiopods <i>Eohadrotreta zhenbaensis</i> from Cigui, Hubei Province, South China
11:25-11:40	<u>Garbelli C.</u> Modelling the shape of brachiopod valves
11:40-11:55	<u>Liang Y.</u> , Zhang Z. New data on shell structure in <i>Helomedusa orienta</i>: taxonomic and phylogenetic implications
11:55-12:10	<u>Chen F.</u> , Zhang Z., Betts M. J., Zhang Z., Liu F. First report on Guanshan Biota (Cambrian Stage 4) at the stratotype area of Wulongqing Formation in Malong County, eastern Yunnan
12:10-12:25	<u>Skovsted C. B.</u> , Liu F., Topper T. P., Zhang Z., Shu D. Are hyoliths brachiopods?

12:25-12:40	<u>Lavié F.</u> , Serra F., Feltes N. Microbrachiopods from the Las Aguaditas and Las Chacritas Formations (Middle Ordovician), Precordillera terrane of western Argentina: a preliminary taxonomic analysis
12:40-13:50	LUNCH
13:50-14:15	<i>Keynote lecture</i> <u>Stigall A. L.</u> Brachiopods as key to evolutionary theory: from foundational systematics and phylogenetics to speciation and biogeography
14:15-14:30	<u>Jin J.</u> Morphological plasticity in the early diversification of the post-extinction Silurian pentameride fauna
14:30-14:45	<u>Zhou H.</u> , Huang B. Population analysis of the Silurian brachiopod <i>Atrypoidea foxi</i> Jones from Qujing, Yunnan Province
14:45-15:00	<u>Lü D.</u> , Ma X. Small-sized brachiopods from the Upper Frasnian (Devonian) of central Hunan, China
15:00-15:15	<u>Qiao L.</u> Devonian brachiopod fauna from the Baoshan block in western Yunnan, China
15:15-15:30	<u>Wu H.</u> , Shi G. R., He W. A quantitative taxonomic review of <i>Fusichonetes</i> and <i>Tethyoconetes</i> (Chonetidina, Brachiopoda)
15:30-15:50	COFFEE-BREAK
SESSION 6	<i>Modern brachiopods</i> <i>Convenors: Bitner A., Cusack M. and Lüter C.</i>
15:50-16:15	<i>Keynote lecture</i> <u>Temereva E.</u> , Kuzmina T. Organization of the lophophore in linguliform <i>Pelagodiscus atlanticus</i> (King) and the evolution of the lophophore in brachiopods
16:15-16:30	<u>Lüter C.</u> , Furchheim N. Light sensation in adult brachiopods
16:30-16:45	<u>Simonet-Roda M.</u> , Milner S., Müller T., Griesshaber E., Jurikova H., Rollion-Bard C., Angiolini L., Ye F., Bitner M. A., Henkel D., Tomašových A., Eisenhauer A., Harper D., Jansen U., Schmahl W. W. The evolution of thecideide brachiopod shell microstructure from Triassic to modern times

16:45-17:00	Simon E., <u>Motchurova-Dekova N.</u> , Mottequin B. Diving into the morphology and ontogeny of the micromorphic rhynchonellide genus <i>Tethyrhynchia</i> Logan, 1994 in an attempt to elucidate a conflict between morphological and molecular phylogenies
17:00-17:15	<u>López Carranza N.</u> , Carlson S. J. Quantifying variability and understanding species delimitation: a case study integrating morphological and genetic datasets in terebratulide brachiopods
17:15-17:30	<u>Carlson S. J.</u> , López Carranza N., Butler A. D., Sperling E. A. Extant Terebratellidina phylogeny and homology of the long loop
17:30-17:45	<u>Gaspard D.</u> Recent brachiopods of the French Insular Caribbean Region
17:45-18:00	<u>Pakhnevich A. V.</u> , Galkin S. V. New data on brachiopods at the underwater Piip Volcano (Bering Sea)
18:00-18.15	<u>Bitner M. A.</u> Recent brachiopods from the Tonga Islands, SW Pacific: taxonomy and biogeography
18:15-18.30	<u>Williams U. M.</u> , Robinson J., Lee D., Lamare M. Investigating the ecology and environmental tolerance to sedimentation of the brachiopod <i>Calloria inconspicua</i> in Otago Harbour, New Zealand
18:30-20:30	POSTER WINE AND CHEESE

Wednesday 12th September 2018

8:45-9.35

PLENARY LECTURE

Brand U.

Modern brachiopods: superheroes of archives

SESSION 5

Biologic mineralization of natural functional materials and archives of geochemical proxies

Convenors: Griesshaber E. and Eisenhauer A.

09:35-10:00

Keynote lecture

Ziegler A., Simonet-Roda M., Griesshaber E., Henkel D., Häusermann V., Eisenhauer A., Laudin J., Schmahl W. W.

Mechanisms of calcite fibre formation in *Magellania venosa*

10:00-10:15

Takayanagi H., Nishio T., Fujioka H., Yamamoto K., Endo K., Iryu Y.

A generalized monthly growth curve of modern brachiopod shells

10:15-10:30

Robinson J. H.

Drill-hole repair in Cenozoic and Recent brachiopods

10:30-10:45

Ye F., Angiolini L., Garbelli C., Shen S.

Evolution and fabric differentiation of Palaeozoic rhynchonelliformean brachiopod shells

10:45-11:05

COFFEE-BREAK

11:05-11:20

Mages V., Casella L., Simonet-Roda M., Ye F., Crippa G., E. Griesshaber, Angiolini L., Schmahl W. W.

The intermediate stages of diagenetic overprint deduced from hydrothermally altered and fossil brachiopod shells

11:20-11:35

Romanin M., Bitner M.A., Angiolini L., Gatta D. G., Brand U.

Cement-filled fossil brachiopod punctae and potential analytical bias in paleoenvironmental reconstructions

11:35-12:00

Keynote lecture

Rollion-Bard C., Milner S., Saulnier S., Burckel P., Vigier N., Angiolini L., Tomašových A., Henkel D., Jurikova H., Lécuyer C.

What can geochemical proxies tell about the biomineralization processes of brachiopods?

12:00-12:15

Bajnai D., Fiebig J., Tomašových A., Milner Garcia S., Rollion-Bard C., Raddatz J., Löffler N., Primo-Ramos C., Angiolini L., Henkel D., Brand U.

Assessing kinetic fractionation in brachiopod calcite using clumped isotopes

12:15-12:30

Smajgl D., Mandic M., Böhm F., Eisenhauer A.

New approach in stable isotope analysis of carbonates: isotope ratio infrared spectrometry

12:30-12:45	Jurikova H., <u>Liebetrau V.</u> , Gutjahr M., Krause S., Büsse S., Gorb S. N., Henkel D., Hiebenthal C., Schmidt M., Leipe T., Laudien J., Eisenhauer A. Major and trace element composition and microstructure of cultured brachiopods – new proxies?
12:45-13:00	<u>Nishio T.</u> , Takayanagi H., Asami R., Shinjo R., Yamamoto K., Iryu Y. Variations in trace element concentrations of modern brachiopod shells
13:00-14:10	LUNCH
14:10-14:25	<u>Müller T.</u> , Tomašových A., Mikuš T. Variation of Mg/Ca in brachiopod shell: expression of growth rate rather than temperature seasonality
14:25-14:40	<u>Fuchs R.</u> , Lazar B., Angiolini L., Crippa G., Felletti F., Fruchter N., Eisenhauer A., Stein M. Reconstructing $^{87}\text{Sr}/^{86}\text{Sr}$ and $\delta^{88/86}\text{Sr}$ in Pliocene-Pleistocene seawater by fossil brachiopods, bivalves, gastropods and foraminifera
14:40-14:55	<u>Wang W.</u> , Garbelli C., Shen S. Permian strontium isotope stratigraphy based on brachiopod shells from South China
SESSION 4	<i>Mass extinctions and recovery</i> Convenors: Shen S., Baliński A. and García Joral F.
14:55-15:20	<i>Keynote lecture</i> <u>Vörös A.</u> Mass extinctions and fatal extinctions in the history of brachiopods: review and post-Paleozoic cases
15:20-15:35	<u>Hughes Z. E.</u> , Belben R. A., Johnson K. G, Twitchett R. J., Hughes C. Brachiomatic: utilising new museum collections digitisation protocols to examine brachiopod size across extinction boundaries cases
15:35-15:50	<u>Chen D.</u> , Rong J. The linguliform and craniiform brachiopods from the latest Ordovician <i>Hirnantia</i> fauna of South China and Myanmar
15:50-16:10	COFFEE-BREAK
16:10-16:25	<u>Huang B.</u> , Jin J., Rong J. Diversification patterns of brachiopods after the end Ordovician mass extinction and its palaeobiogeographic significance
16:25-16:40	<u>Mottequin B.</u> , Bartzsch K., Simon E., Weyer D. Evolution of the brachiopod assemblages at the Devonian–Carboniferous boundary (Hangenberg Crisis) in basinal facies from SE Thuringia (Germany)

16:40-16:55	<u>Jurikova H.</u> , Gutjahr M., Wallmann K., Flögel S., Liebetrau V., Posenato R., Angiolini L., Garbelli C., Brand U., Eisenhauer A. Major marine carbon cycle perturbations during the Permian-Triassic mass extinction
16:55-17:20	<i>Keynote lecture</i> <u>Shen S.</u> , Ramezani J., Chen J., Cao C., Erwin D. H., Zhang H., Xiang L., Schoepfer S. D., Henderson C. M., Zheng Q., Bowring S. A., Wang Y., Li X., Wang X., Yuan D., Zhang Y., Mu L., Wang J., Wu Y. A sudden end-Permian mass extinction in South China
17:20-17:35	<u>Wang F.</u> , Chen J., Dai X., Song H. A new Induan (Early Triassic) brachiopod fauna from South China and implications for biotic recovery after the Permian-Triassic extinction
17:35-17:50	<u>MacFarlan D. A. B.</u> Early Jurassic terebratulide brachiopods from Zealandia
17:50-18:05	<u>Piazza V.</u> , Aberhan M. Selectivity of temperature-related stresses towards brachiopods across the Early Toarcian (Early Jurassic) extinction event in Neo-Tethys
18:05-19:00	POSTERS
19:00-20:00	CONCERT
20:00-23:00	GALA DINNER

Friday, 14th September 2018

08:30-09.20

PLENARY LECTURE

Harper E. M.

Living brachiopods: hanging on or fit for a modern world?

SESSION 3

Ecosystems in time and space

Convenor: Harper D.A.T.

09:20-09:45

Keynote lecture

Zhang Z., Holmer L. E., Brock G. A., Topper T. P.

Paleoecological complexities during Cambrian explosion: evidence from brachiopods

09:45-10:00

Topper T. P., Harper D. A. T.

Back to the beginning: the life and times of Cambrian brachiopods

10:00-10:15

Liu F., Zhang Z., Chen Y., Chen F.

A diverse fossil assemblage from a new section through the Shipai Formation (Cambrian Series 2, Stage 4) in western Hubei Province, South China

10:15-10:30

Pan B., Skovsted C. B., Li L., Li G.

The Cambrian Epoch 2 brachiopod fauna from the Xinji Formation, Shuiyu section of North China

10:30-10:50

COFFEE-BREAK

10:50-11:15

Keynote lecture

Harper D. A. T.

The rise of the rhynchonelliform brachiopods: the role of the great Ordovician biodiversification event

11:15-11:30

Candela Y., Harper D. A. T., Mergl M.

Early Ordovician (Late Tremadocian – Early Floian) brachiopods from the Fezouata Shale, Anti-Atlas, SE Morocco

11:30-11:45

Cocks L. R. M., Torsvik T. H.

Useful and useless – brachiopods and palaeogeography

11:45-12:00

Jansen U.

Evolution, stratigraphy and palaeobiogeography of Late Pridolian–Early Eifelian brachiopods from the Rhenish Massif (Germany)

12:00-12:15

Guo W., Sun Y., Nie T.

Facies control on the Lower Emsian (Lower Devonian) brachiopod faunas in South China

12:15-12:30

Balinski A., Halamski A. T., Racki G.

A diverse Early Frasnian brachiopod fauna from central Poland and its palaeoecological characteristics

12:30-12:45	<u>Halamski A. T.</u> Palaeobiogeography and evolutionary affinities of the Early Frasnian brachiopod fauna from central Poland
12:45-13:00	<u>Xu H.</u> , Zhang Y., Qiao F., Shen S. A new Changhsingian (Late Permian) brachiopod fauna from the Xiala Formation at Coqen in the central Lhasa Block and its palaeogeographical implications
13:00-14:10	LUNCH
14:10-14:35	<i>Keynote lecture</i> <u>Twitchett R. J.</u> Brachiopods in post-Permian hothouse worlds
14:35-14:50	<u>Kiel S.</u> , Peckmann J. The ecology of brachiopods in ancient methane-seep environments
14:50-15:05	<u>Dulai A.</u> , Özcan E., Less G. Eocene brachiopods of the Thrace Basin (NW Turkey)
15:05-15:20	<u>García-Ramos D. A.</u> , Zuschin M. Cyclicity of <i>Terebratula</i> pavements in a mixed carbonate-siliciclastic prograding wedge: Early Pliocene of SE Spain
15:20-15:35	<u>Buono G.</u> Brachiopods in Italy: a very long record and a new database
SESSION 2	<i>Taphonomy and Palaeoecology</i> Convenors: Pérez-Huerta A. and Tomašových A.
15:35-16:00	<i>Keynote lecture</i> <u>Shiino Y.</u> Form and function of fossil brachiopods: insights into evolutionary morphology
16:00-16:15	<u>Tomašových A.</u> , Kidwell S. M., Müller T. Time averaging of brachiopods in the southern California bight: implications for paleoecology, taphonomy, and conservation paleobiology
16:15-16:35	COFFEE-BREAK
16:35-16:50	<u>Cisterna G. A.</u> , Sterren A. F., Shi G.R. Carboniferous-Permian glacial-deglacial events and their effects on the brachiopod faunas from Argentina and Australia
16:50-17:05	<u>Yuan Z.</u> , Sun Y., Shen B. An <i>in situ</i> preserved late early Carboniferous brachiopod fauna in southern Guizhou, China
17:05-17:20	<u>Bahrammanesh M.</u> , Rezaee H., Mossadegh H. Tournaisian (Mississippian) brachiopods from the Mobarak Formation, eastern Alborz (north Iran)

- 17:20-17:35 Sun Y., Li T., Nie T., Shen B., Guo W.
***Dzieduszyckia* in southern China: morphological variation and population dynamics**
- 17:35-17:50 Sproat C.D., Zhan R.
A Late Katian (Late Ordovician) low diversity and high dominance brachiopod fauna from the Tarim Basin in Northwest China
- 17:50-18:05 Chen J., Song H., Wang F.
Size evolution of brachiopods from the Late Permian through the Middle Triassic in South China

POSTERS

SESSION 1

Systematics and evolution

- 1 Bahrammanesh M., Zahabizadeh B., Alaeddini K.
Carboniferous brachiopods from NW Havar Lake (Damavand, N Iran)
- 2 Berrocal-Casero M., Barroso-Barcenilla F., García Joral F.
Microornamentation and other external features as distinctive criteria for the Coniacian (Upper Cretaceous) terebratulides from Northern Spain
- 3 Buono G.
Famous brachiopods, part 1: brachiopods in lapidary stones
- 4 Buono G.
Famous brachiopods, part 3 – brachiopods in philately
- 5 Legrand-Blain M.
Gigantoproductid and allied brachiopods from “L’ardoisiere” (Visean), northern Massif Central, France
- 6 Leone M. F., Benedetto J. L.
Phylogenetic relationships of the Silurian Afro-South American Realm rhynchonellide brachiopods *Anabaia*, *Harringtonina* and *Clarkeia*: new insights from their ontogeny
- 7 Mottequin B., Lefèvre U., Cisterna G. A.
A review of the brachiopod subfamily Septosyringothyridinae (Spiriferinida) from the Carboniferous of Laurussia and Gondwana
- 8 Taddei Ruggiero E., Raia P.
The old, misnamed, misunderstood *Terebratula sinuosa*

SESSION 2

Taphonomy and Palaeoecology

- 9 Angiolini L., Banks V., Carniti A., Della Porta G., Stephenson M.
How mud mounds controlled brachiopod population growth and life-style in the Carboniferous: an example from the Viséan of Derbyshire, UK
- 10 Baliński A., Skompski S., Szulczeński M., Zawadzka I.
The origin of the Middle–Late Devonian brachiopod shell concentration within intrashelf basinal carbonates in the Holy Cross Mountains (central Poland)
- 11 Madison A., Kuzmina T.
The tube-like structures on the juvenile shells of strophomenids and billingsellids as evidence of their life cycles
- 12 Pakhnevich A. V.
Preservation of brachiopod soft tissues outside the Lagerstätte conditions

- 13 Pálfy J., Price G. D., Vörös A., Kovács Z., Johannson G. G.
Cold seep-related occurrence of the Early Jurassic rhynchonellid brachiopod *Anarhynchia* from the Canadian Cordillera
- 14 Paredes R., Comas-Rengifo M. J., García Joral F., Duarte L. V., Goy A.
Disparity and diversity in Early Jurassic first colonizing brachiopods of the Lusitanian Basin (Portugal)
- 15 Shiino Y., Tsuchida T.
A hydrodynamic approach to orthid brachiopod *Vinlandostrophia ponderosa*: reevaluation of zig-zag function
- 16 Sklenář J.
Brachiopods of the Late Turonian hemipelagic strata of the Saxon-Bohemian Cretaceous Basin (central Europe)
- 17 Stadtmauer D., Butts S.
Skeletal ultrastructure, ecology, and functional morphology of the Permian lyttoniid brachiopod, *Pirgulia*
- 18 Viaretti M., Angiolini L., Heward A.
Lower to Middle Permian brachiopods from the Qarari Unit, Oman
- 19 Zhang Y., Zhan R., Huang B.
Late Ordovician brachiopods from Xichuan, southwestern Henan, central China and their implications
- 20 Zhang Z., Holmer L. E., Zhang Z., Chen F., Liang Y.
Brachiopods with soft parts from the Early Cambrian Wulongqing Formation (Series 2, Stage 4) of Yunnan, southern China

SESSION 3 *Ecosystems in time and space*

- 21 Baeza-Carratalá J. F., Dulai A., Giannetti A., Soria J. M., Tent-Manclús J. E.
A new Late Tortonian brachiopod assemblage from the Mediterranean-Atlantic seaway (Guadix Basin, SE Spain)
- 22 Vörös A., Escarguel G.
Brachiopod paleobiogeography in the western Tethys during the Early Jurassic taxonomic diversity maximum: identification of a new Pontic province

SESSION 4 *Mass extinctions and recovery*

- 23 Baeza-Carratalá J. F., Dulai A., Sandoval J.
First brachiopod diversification in the Early Jurassic of the Subbetic platform (South-Iberian Paleomargin, Spain)
- 24 Baeza-Carratalá J. F., García Joral F.
Adaptive response of brachiopod fauna to the environmental changes related to the Early Toarcian mass extinction event

- 25 Serobyan V., Grigoryan A., Crônier C., Mottequin B., Taniel D.
The brachiopod record around the Devonian–Carboniferous boundary: insights from the sedimentary sequences of Armenia
- 26 Vörös A., Dulai A., Főzy I.
Brachiopods and the Early Cretaceous Weissert event (Bakony Mountains, Hungary)
- 27 Zhang Y., Wu H.
Early warning signals of marine benthic ecosystem prior to the Permian–Triassic boundary mass extinction event in South China
- SESSION 5** *Biologic mineralization of natural functional materials and archives of geochemical proxies*
- 28 Bruggmann S., Klaebe R., Frei R.
Chromium isotopes in brachiopods as a redox proxy
- 29 Füger A., Kuessner M., Rollion-Bard C., Leis A., Dietzel M., Mavromatis V.
The effect of pH and precipitation rate on $\delta^7\text{Li}_{\text{solid-fluid}}$ during the growth of calcite - an experimental approach
- 30 Fujioka H., Takayanagi H., Yamamoto K., Iryu Y.
Quantitative study of geochemically diagenetic impact on fossil brachiopod shells from northeastern Japan
- 31 Gaspard D.
Disorder introduced in the hierarchical architecture of selected fossil rhynchonelliform brachiopod shells
- 32 Gaspers N., Magna T., Tomašových A., Henkel D., Jurikova H.
Lithium in brachiopods – proxy for seawater evolution?
- 33 Isowa Y., Kito K., Endo K.
An immunological study of the shell matrix protein ICP-1 in brachiopods
- 34 Jurikova H., Liebetrau V., Gutjahr M., Rollion-Bard C., Hu M. Y., Krause S., Henkel D., Hiebenthal C., Schmidt M., Laudien J., Eisenhauer A.
Geochemical and physiological responses of brachiopods to ocean acidification – new insights from boron isotopes
- 35 Kocsis L., Dulai A., Yunsi M., Cipriani A.
Geochemical study of *Megathiris detruncata*, a brachiopod species known since the Eocene in Europe
- 36 Legett S. A., Rasbury E. T., Grossman E. L., Hemming N. G., Wright C. C.
Shelled archives: using brachiopods to reconstruct the seawater $\delta^{11}\text{B}$ record across the Late Paleozoic Climate Shift
- 37 Milner Garcia S. A., Rollion-Bard C., Burckel P., Müller T., Jurikova H., Tomašových A., Angiolini L., Henkel D.
Fossil brachiopod shell calcite: how well is the oxygen isotope composition and minor element ratios preserved within the shell microstructure?

- 38 Romanin M., Crippa G., Ye F., Bitner M. A., Gaspard D., Häussermann V., Laudien J., Brand U.
Trace elements, stable isotope composition and shell microstructure, defining the optimal sampling shell segment for geochemical analyses in five modern brachiopod species
- 39 Simonet-Roda M., X. Yin, Cross E., Harper L., Ziegler A., Schmahl W. W., Peck L., Griesshaber E.
Microstructure formation in the shell of the Antarctic brachiopod *Liothyrella uva* (Broderip 1833): transition from larval to juvenile stages
- 40 Twitchett R. J., Paulus C., Hughes Z., Brownscombe W.
Giants in the hot tub? Sclerochronology of Pliocene brachiopods of southeast UK
- 41 Ye F., Jurikova H., Angiolini L., Brand U., Crippa G., Henkel D., Laudien J., Hiebenthal C., Šmajgl D.
Variation in brachiopod microstructure and isotope geochemistry under low pH - ocean acidification – conditions

SESSION 6

Modern brachiopods

- 42 Bitner M. A., Romanin M.
Recent brachiopods from the South China Sea, NW Pacific
- 43 Bitner M. A.
The first recent record of the genus *Neobouchardia* (Brachiopoda: Bouchardiidae) from the Coral Sea, SW Pacific
- 44 Buono G., Davidde B., Sacco Perasso C., Ricci S.
“Famous brachiopods”, part 2 – brachiopods on archeological remains
- 45 Endo K., Motchurova-Dekova N., Suzuki N., Maekawa Y., Takayanagi H., Hirose M.
A new locality of a living platidiid in northern Japan observed by a remotely operated vehicle
- 46 Temereva E., Kuzmina T.
Spermatogenesis in the deep-sea brachiopod *Pelagodiscus atlanticus* (Brachiopoda: Linguliformea)