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OMICS Group has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.



Organization of Avian Thymic Medullary Epithelial Cells and Surfactant Production

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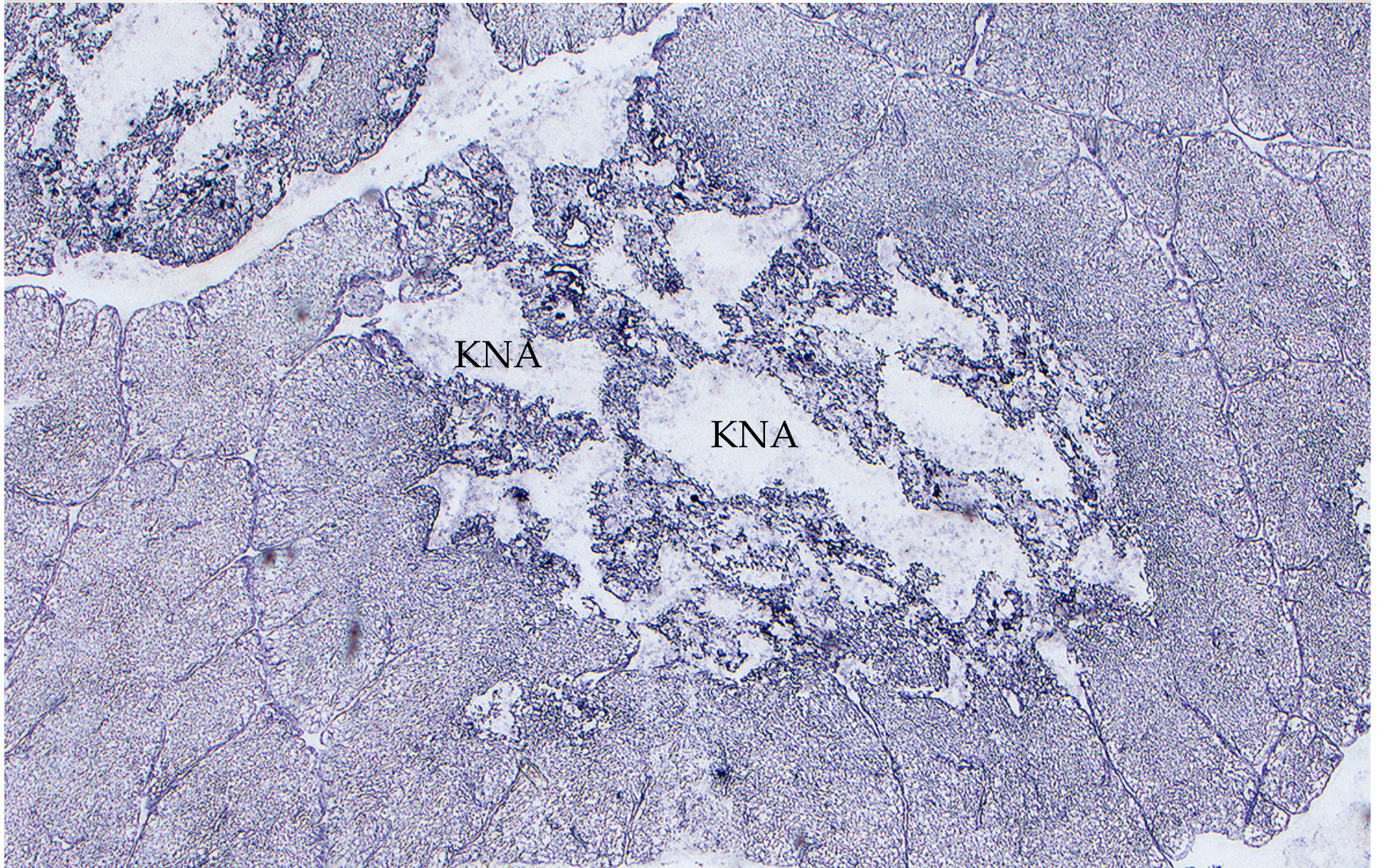
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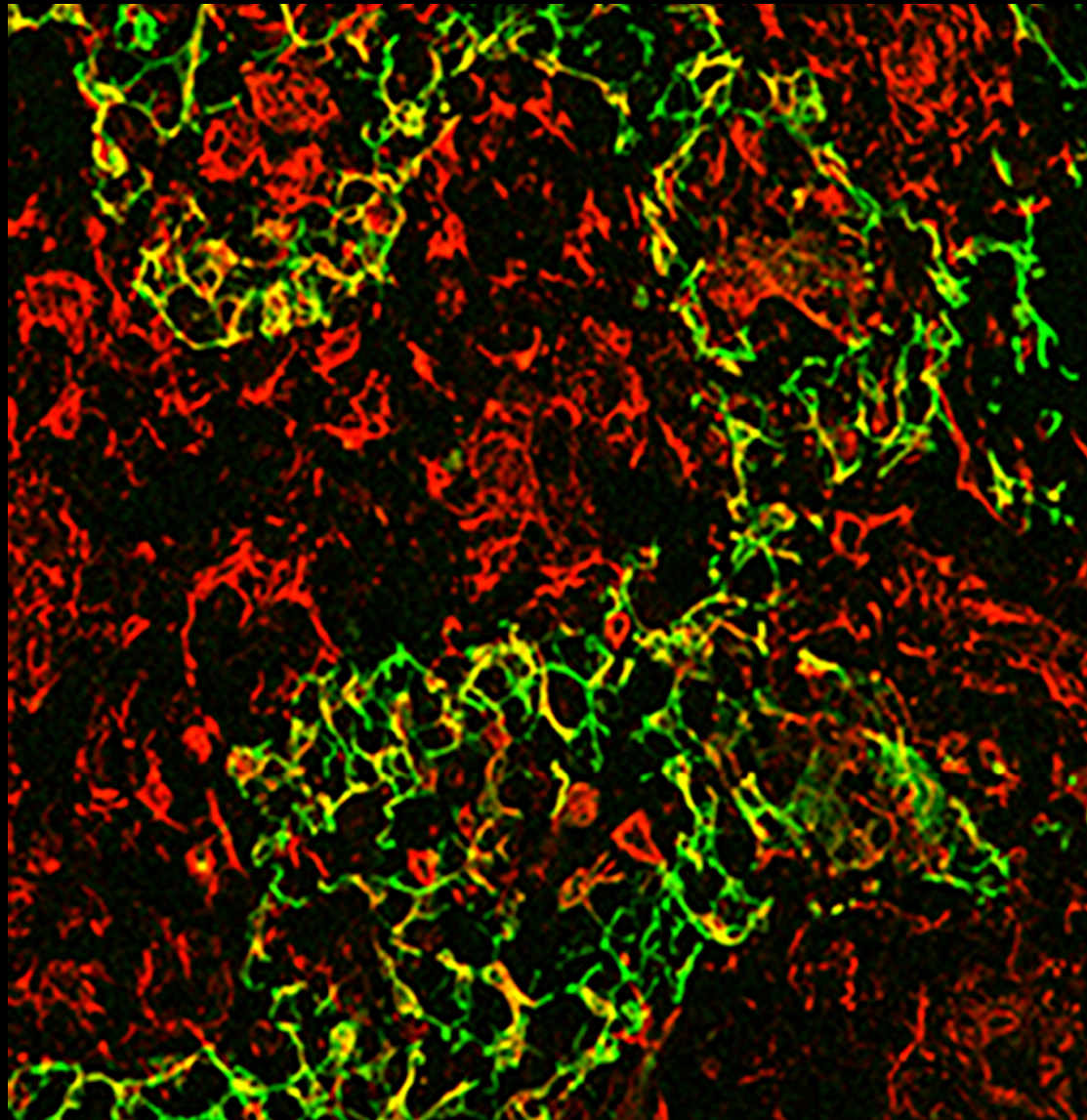


- The thymic and lung epithelial anlage develop from the foregut endoderm, thus both thymus and lung have common epithelial progenitor cell.
- It is known, that the thymus is capable of surfactant production like type II pneumocytes of the lung. Now, it is confirmed in avian and human thymus.
- The purpose of this work was to determine the avian surfactant producing epithelial cells in thymus.

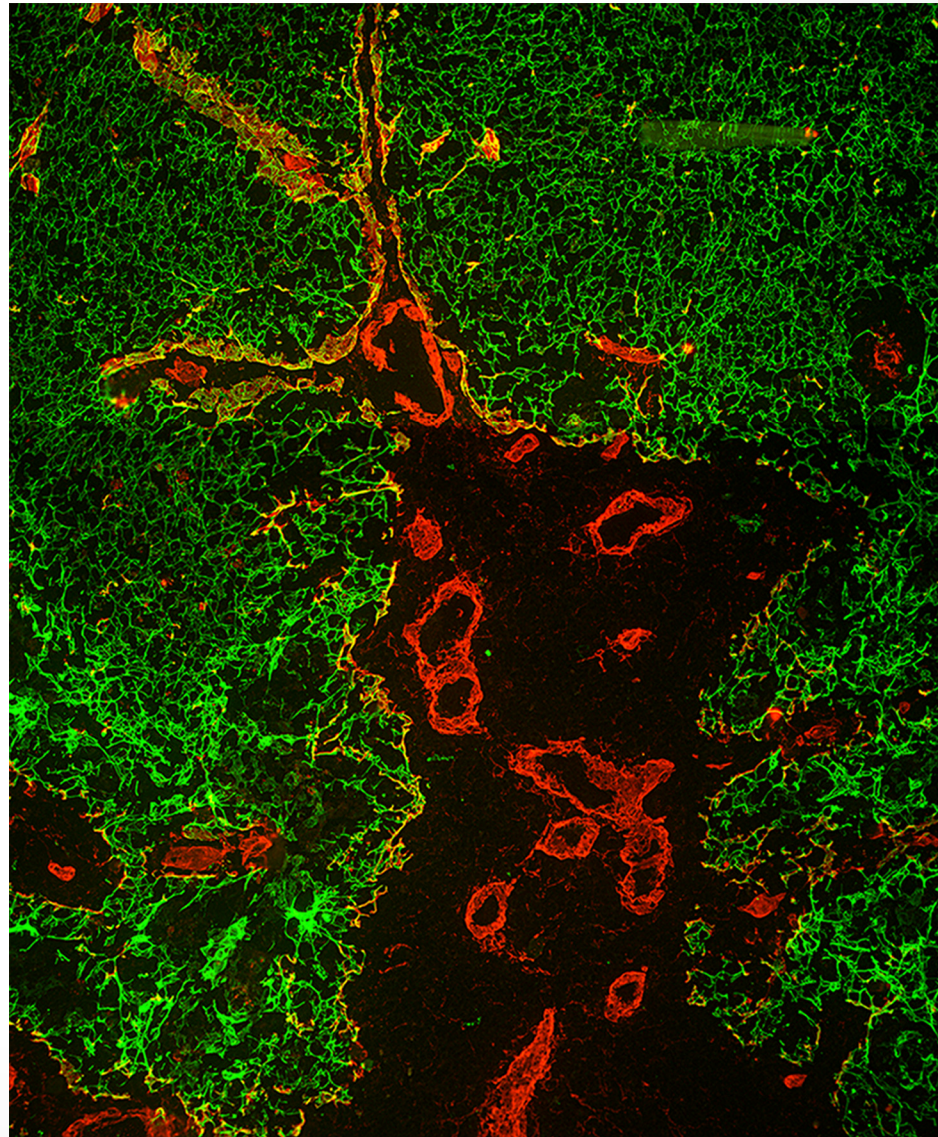
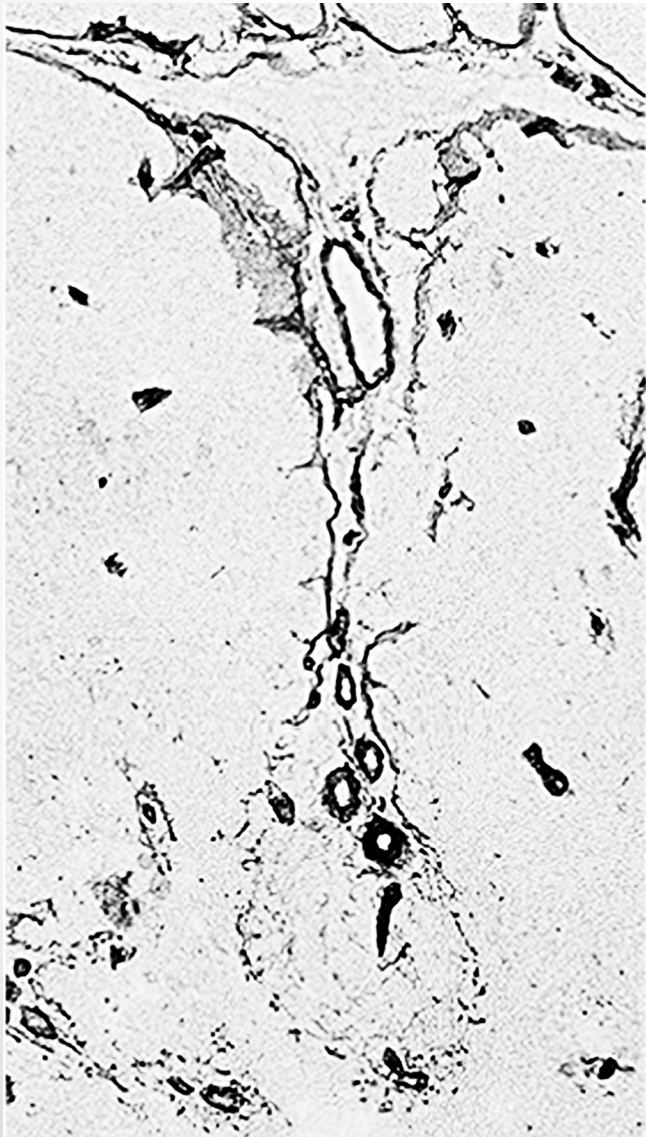
Anti-cytokeratin staining revealed two compartments in the thymic medulla: 1. **Keratin positive network**, 2. **Keratin negative areas**.



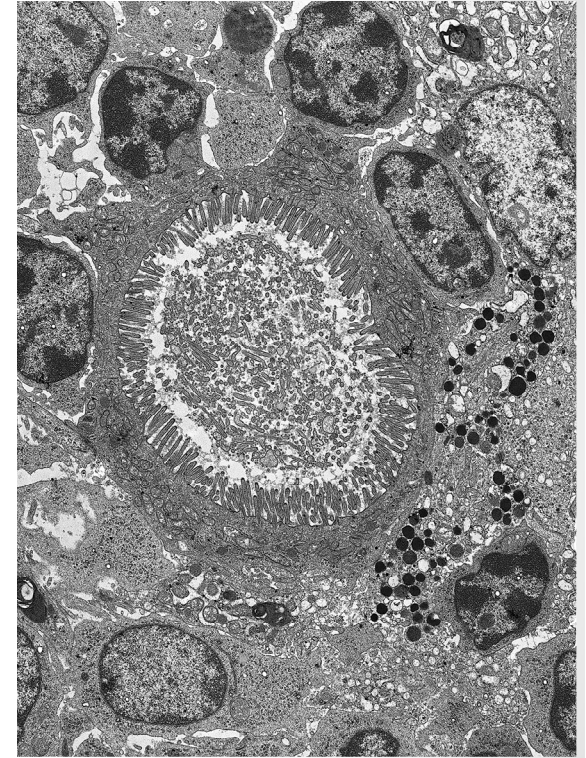
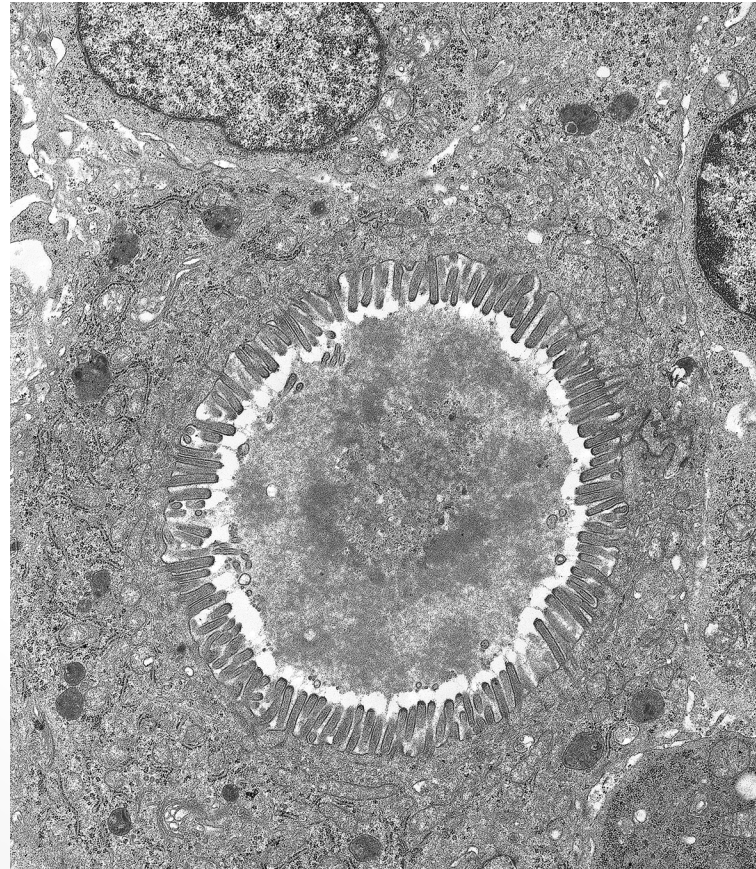
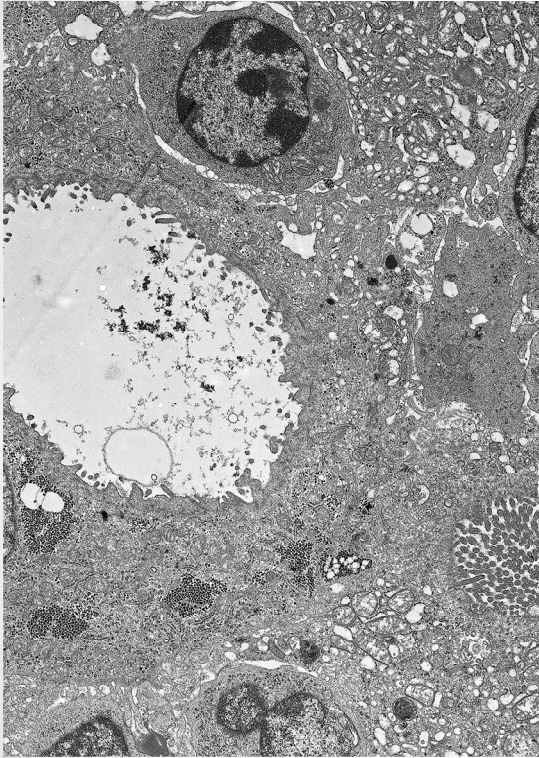
Keratin positive network (KPN). Double staining of **cytokeratin** and **vimentin** intermediate filaments. Marginal cells of KPN express vimentin.



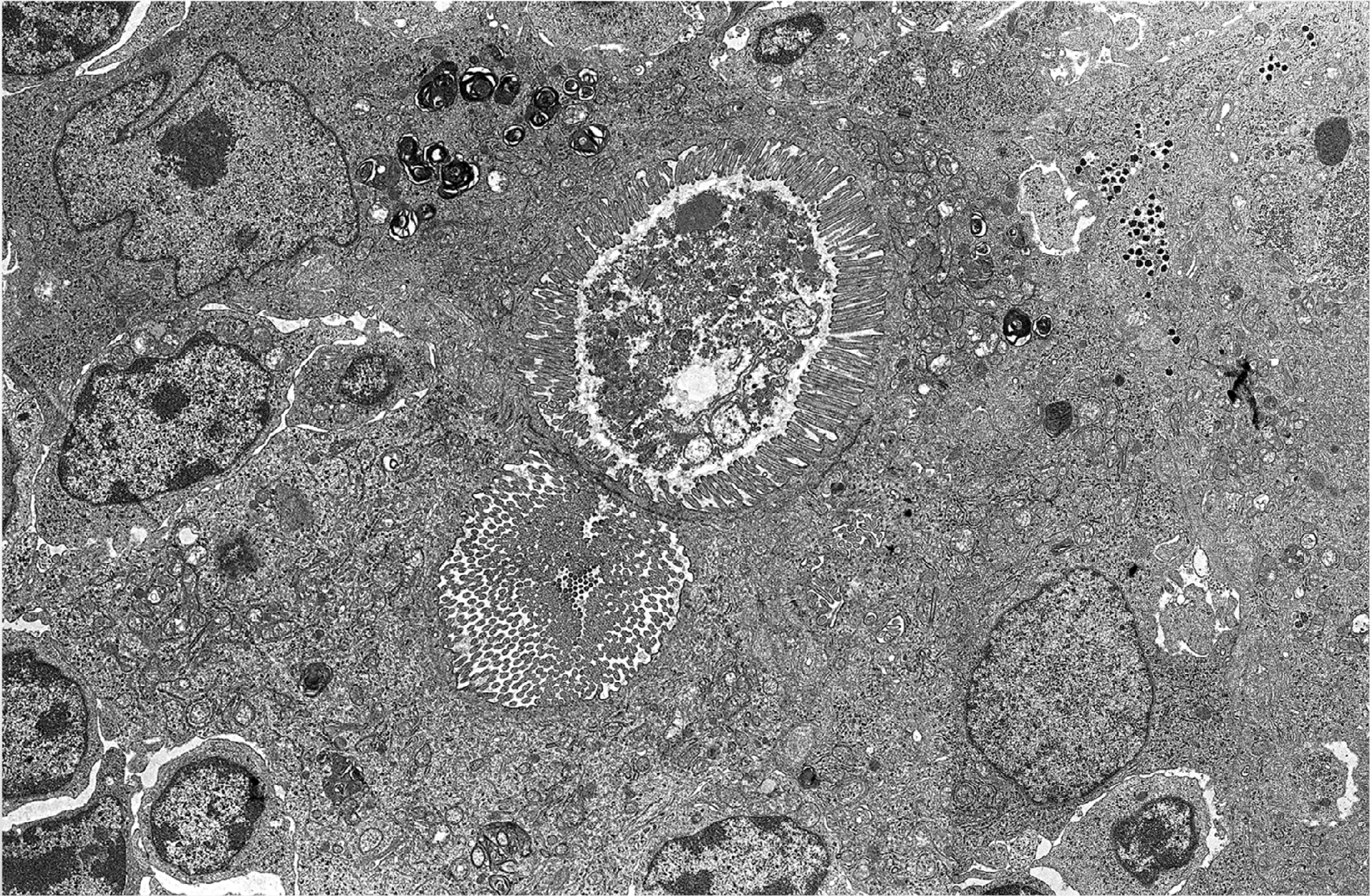
Basal lamina becomes interrupted at the corticomedullary border, which can contribute to the lack of blood-thymus barrier.



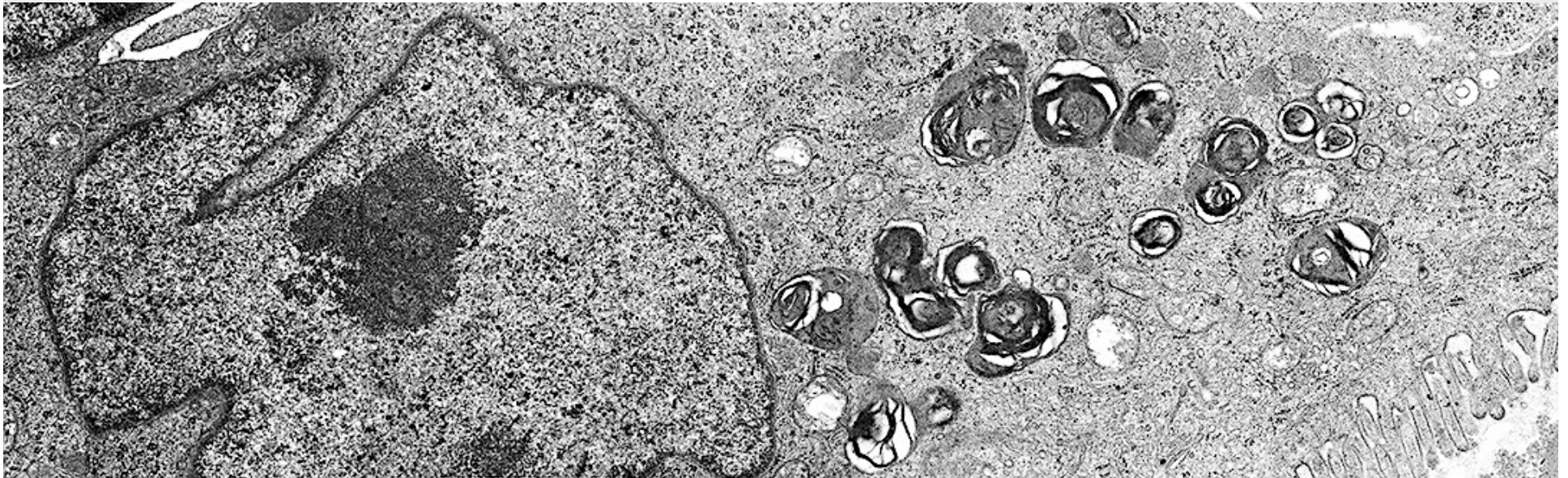
Cysts can contain different electron dense substance: 1. transparent fluid, 2. fine flocculated substance and 3. High electron dense material.



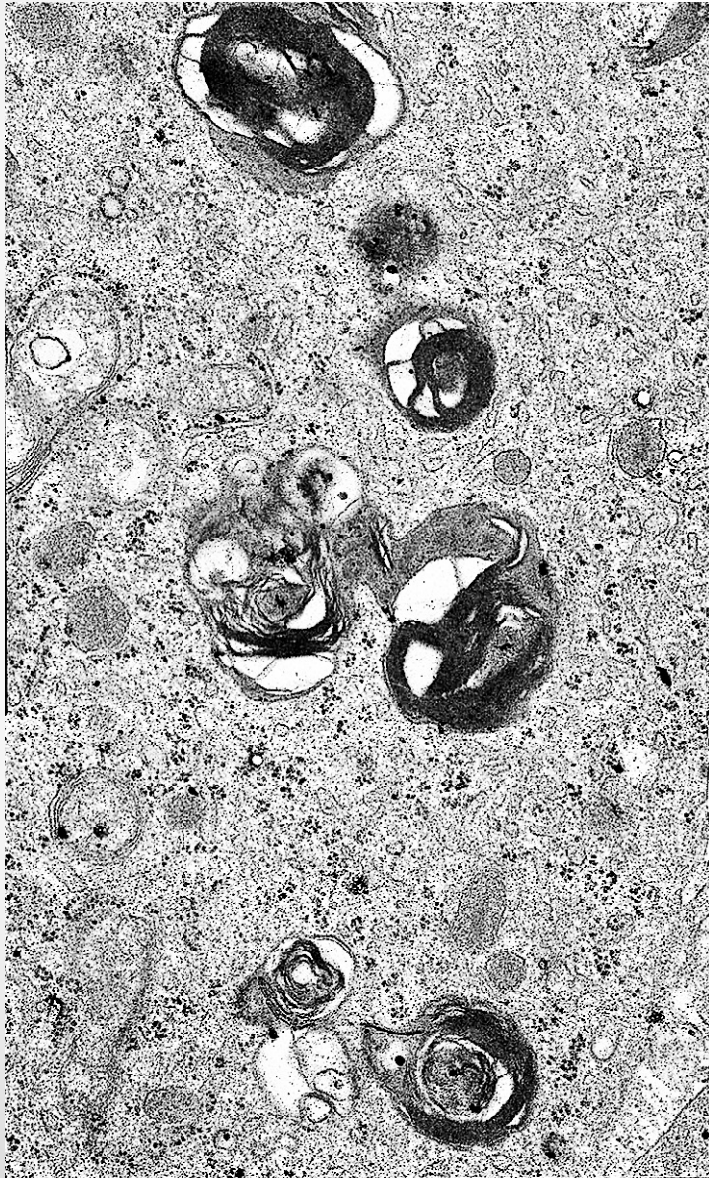
Two cysts: in one of them medium electron dense substance occurs. In the cytoplasm of one of the cyst-forming epithelial cells lamellated granules occur.



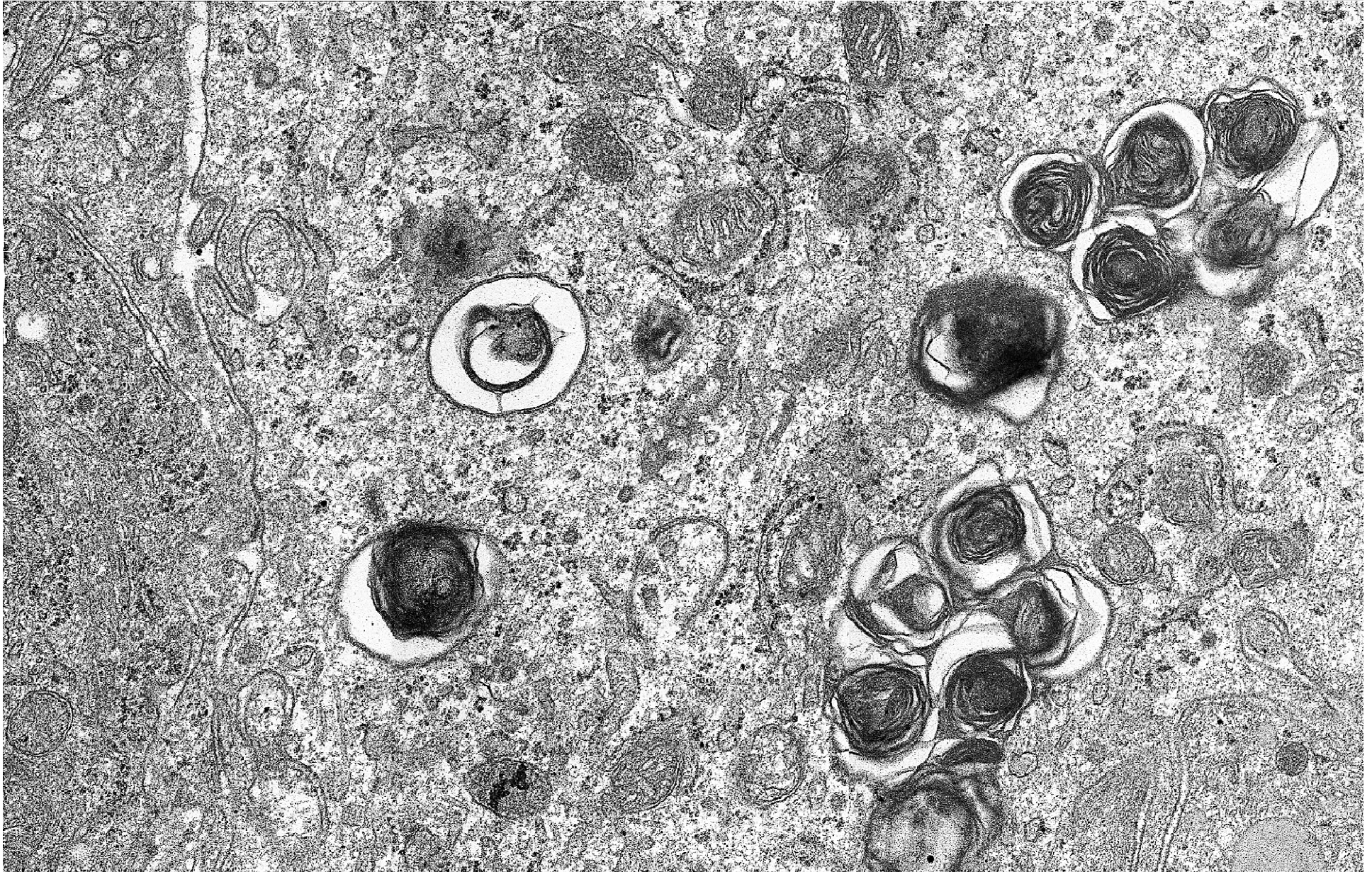
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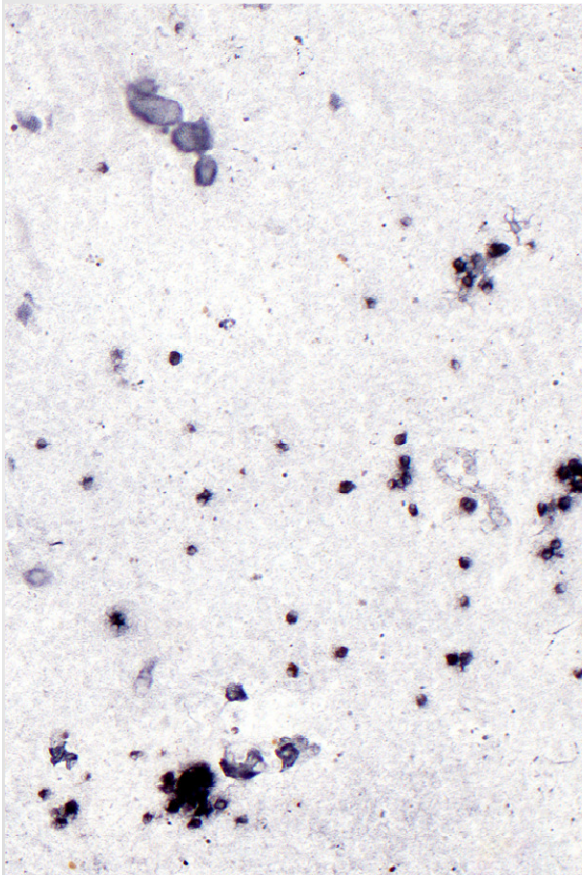
Higher magnification of lamellated granules of a thymic cyst epithelial cell and a type II pneumocytes.



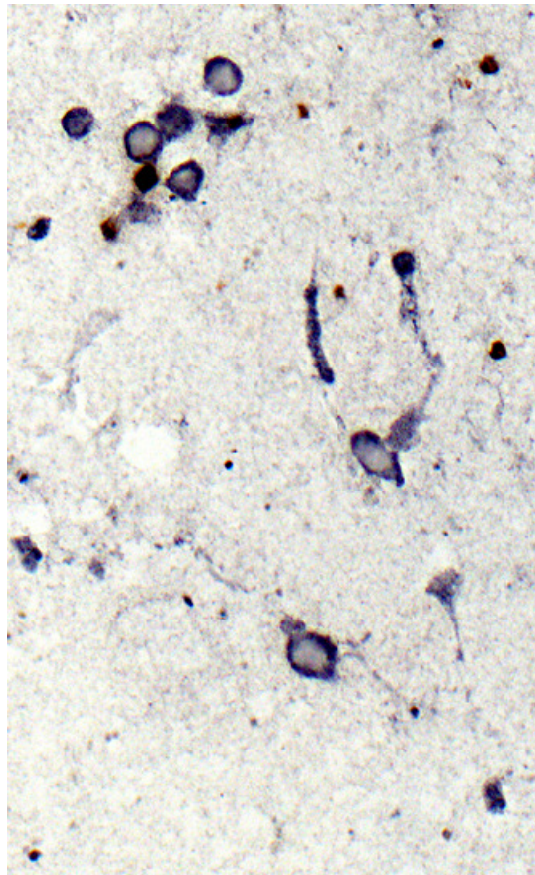
Individual thymic epithelial cell contains lamellated granules.



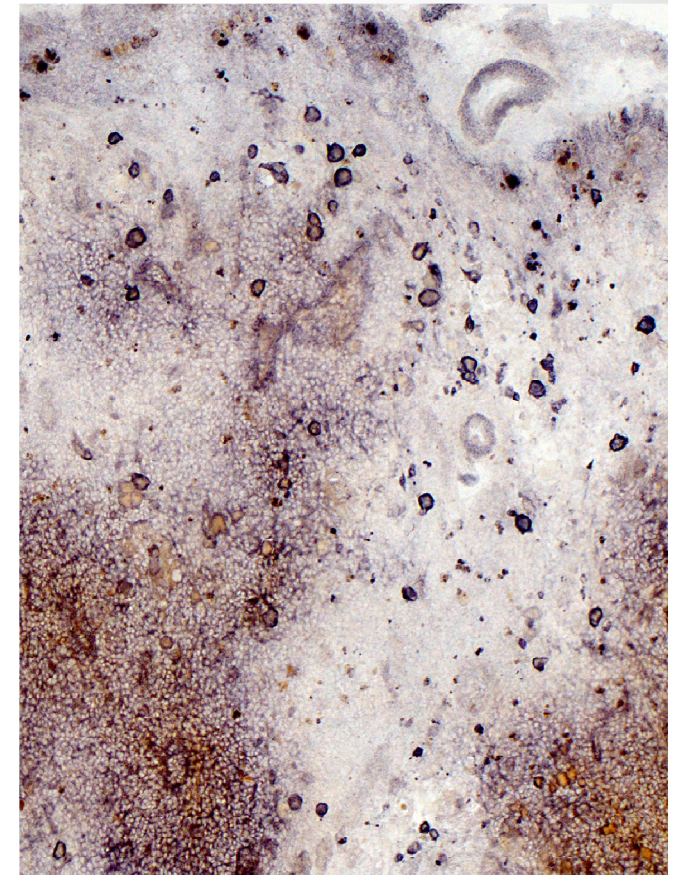
Cyst-forming cells express surfactant A and surfactant B proteins. Dexamethasone treatment eliminates the T-cells but not the surfactant production.



SPA

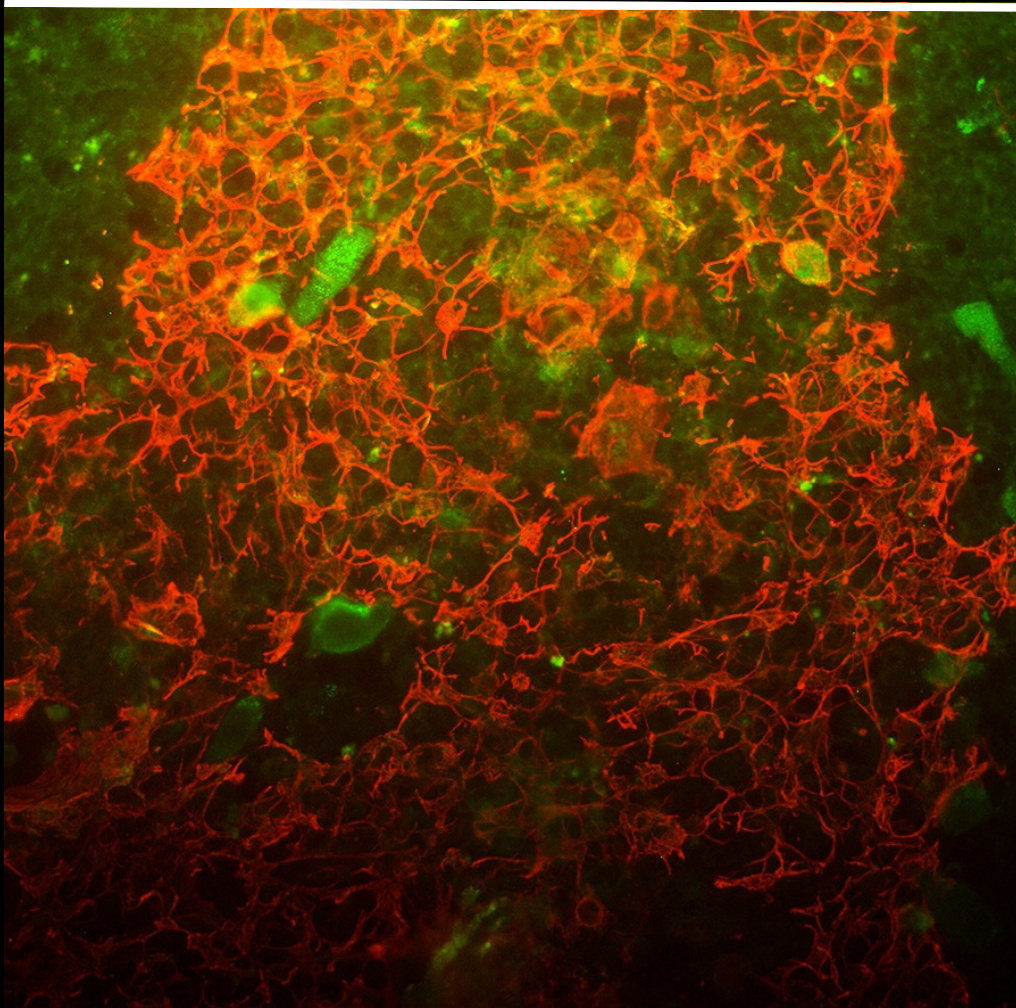


SPB

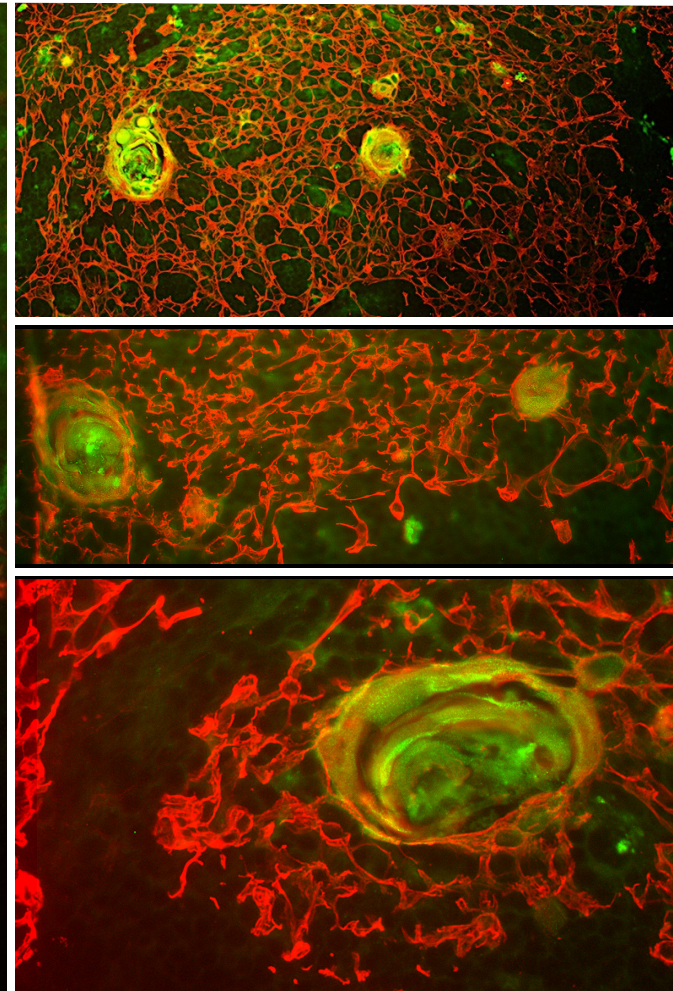


Dexa SPA

Double staining of thymus: both chicken and human thymus produces surfactant.

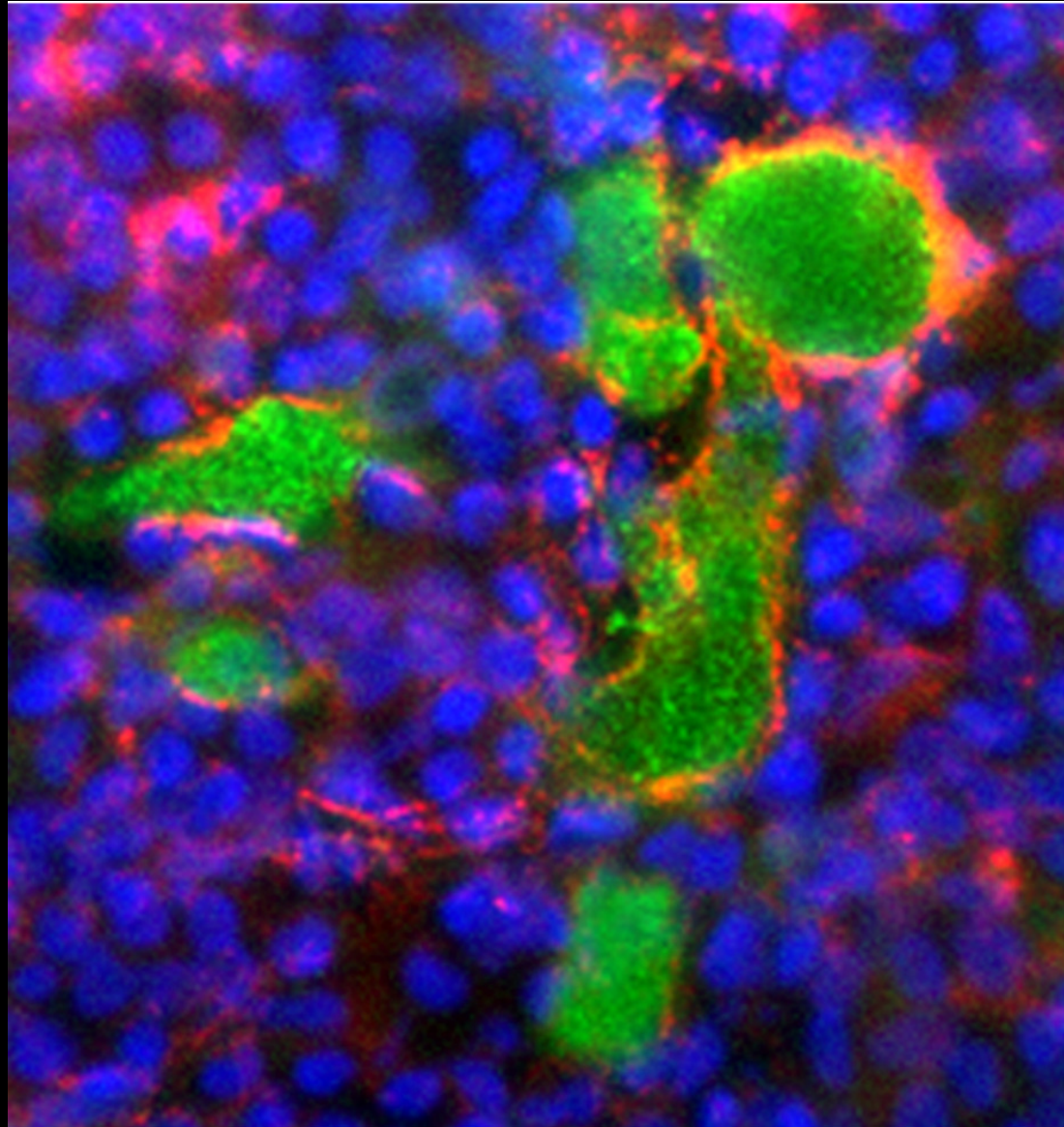


Chicken cytokeratin/SPB

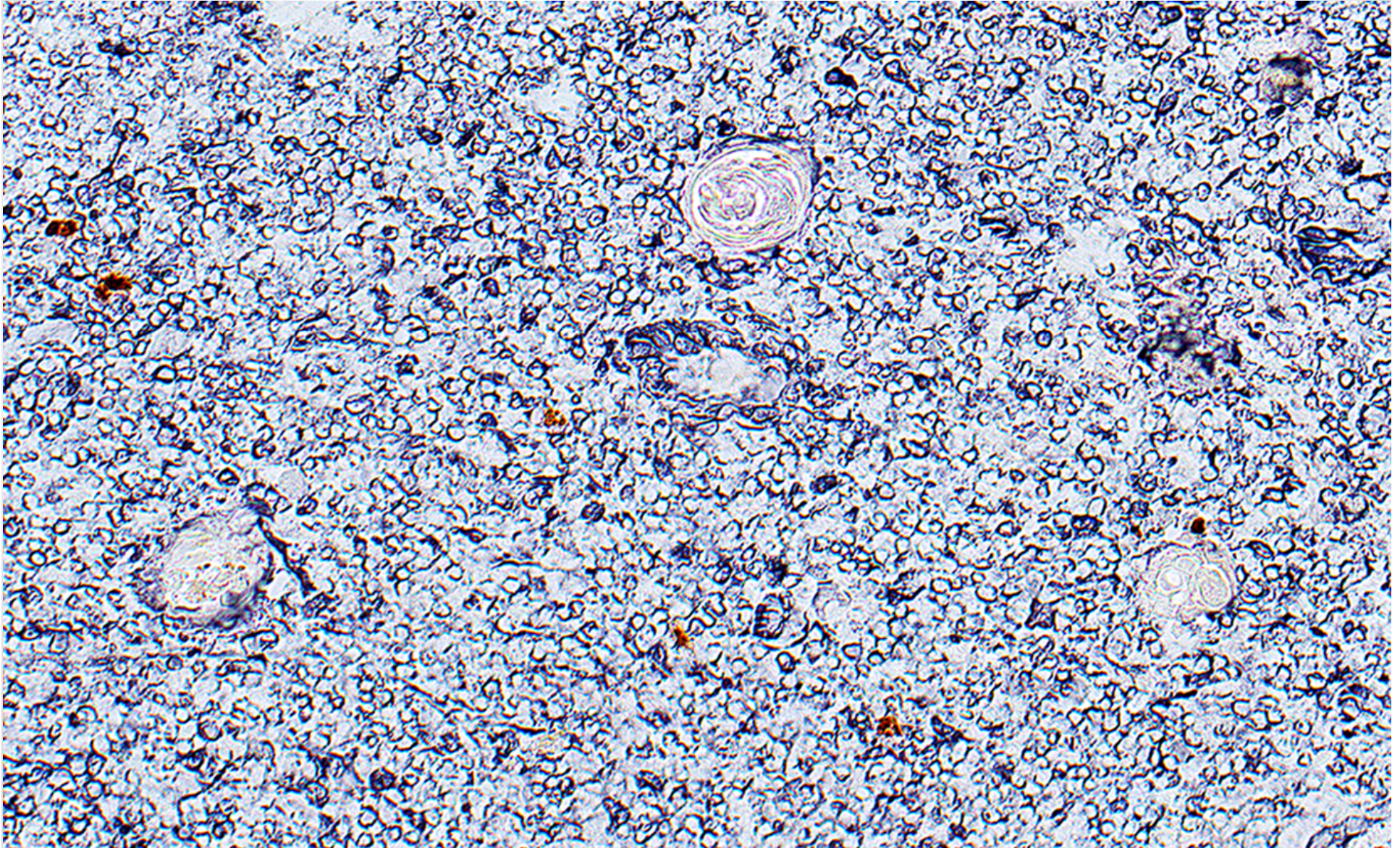


Human cytokeratin/SPB

Double staining of thymus with **anti-surfactant B** and **MHC class II** antibodies. Cyst-forming cells express **MHC class II** antigen.



Hassall's bodies consist of keratinized cells in the vimentin positive human thymic medulla.



Thymic medullary epithelial cells:

KPN	SPB	MHC II	Keratin	Vimentin	Differentiation
Marginal cells	?	+	+	+	Completed
Inner cells Hassall's body	?	+	+	-	Late stopping
Cyst-forming cells	+	+	+	?	Early stopping
Cortical TEC	-	+	+	-	Completed
Type II pneumocytes	+	-	+	-	Precursor of type I pneumocytes

Conclusion :

- Marginal cells of the Keratin Positive Network (KPN) express keratin and vimentin intermediate filaments; These cells possibly contribute to the negative selection of autoreactive thymocytes.
- Cyst- forming cells are polarized with secretory function; enteroendocrine peptide and surfactant production. Their differentiation stopped in early developmental stages.
- Hassall's corpuscles are formed from the center cells of KPN, which does not express vimentin intermediate filaments. The differentiation of the cell of Hassall's bodies stopped in late development.



To this work contributed:

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