

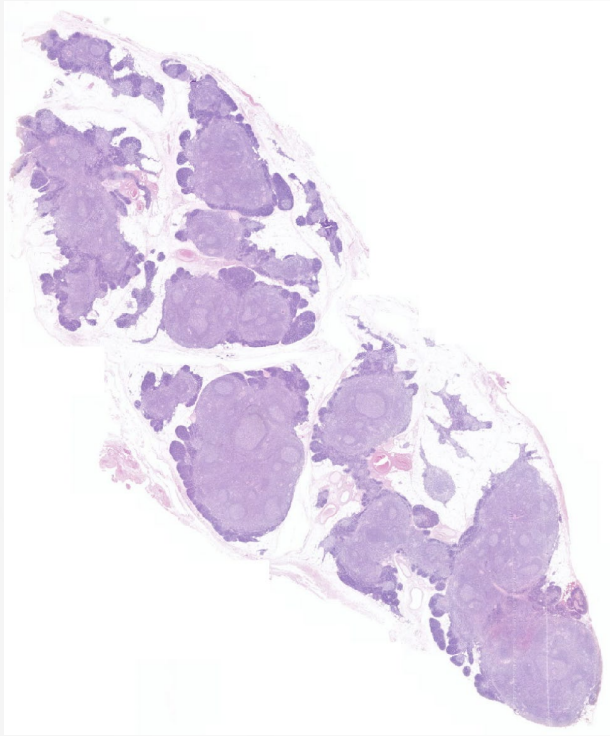
Thymic germinal centers predict outcome after thymectomy

[Joonas Sarkkinen](#) , [Johannes Dunkel](#), [Anni Tuulasvaara](#), [Antti Huuskonen](#), [Sari Atula](#), [Eliisa Kekäläinen](#) & [Sini M. Laakso](#)

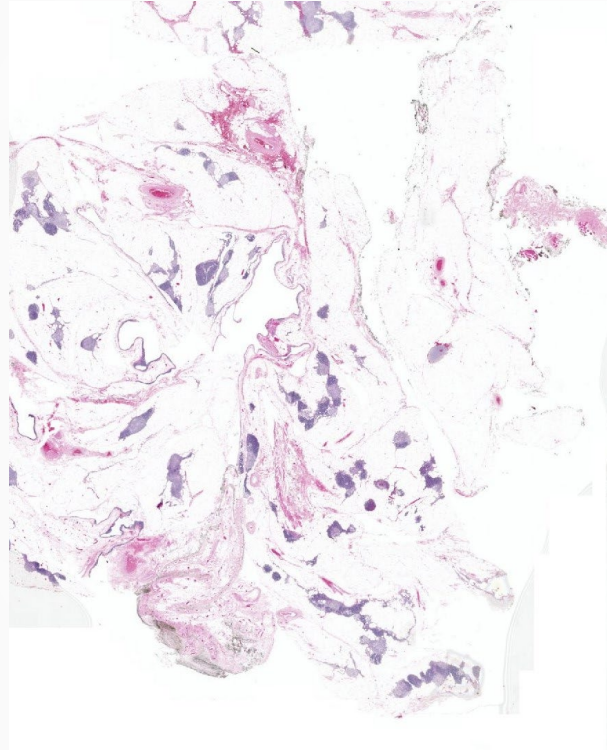
[Modern Pathology](#) **35**, 1168–1174 (2022)



MG and thymus



EOMG
60% of patients have thymic hyperplasia



LOMG
10-15% with thymic hyperplasia

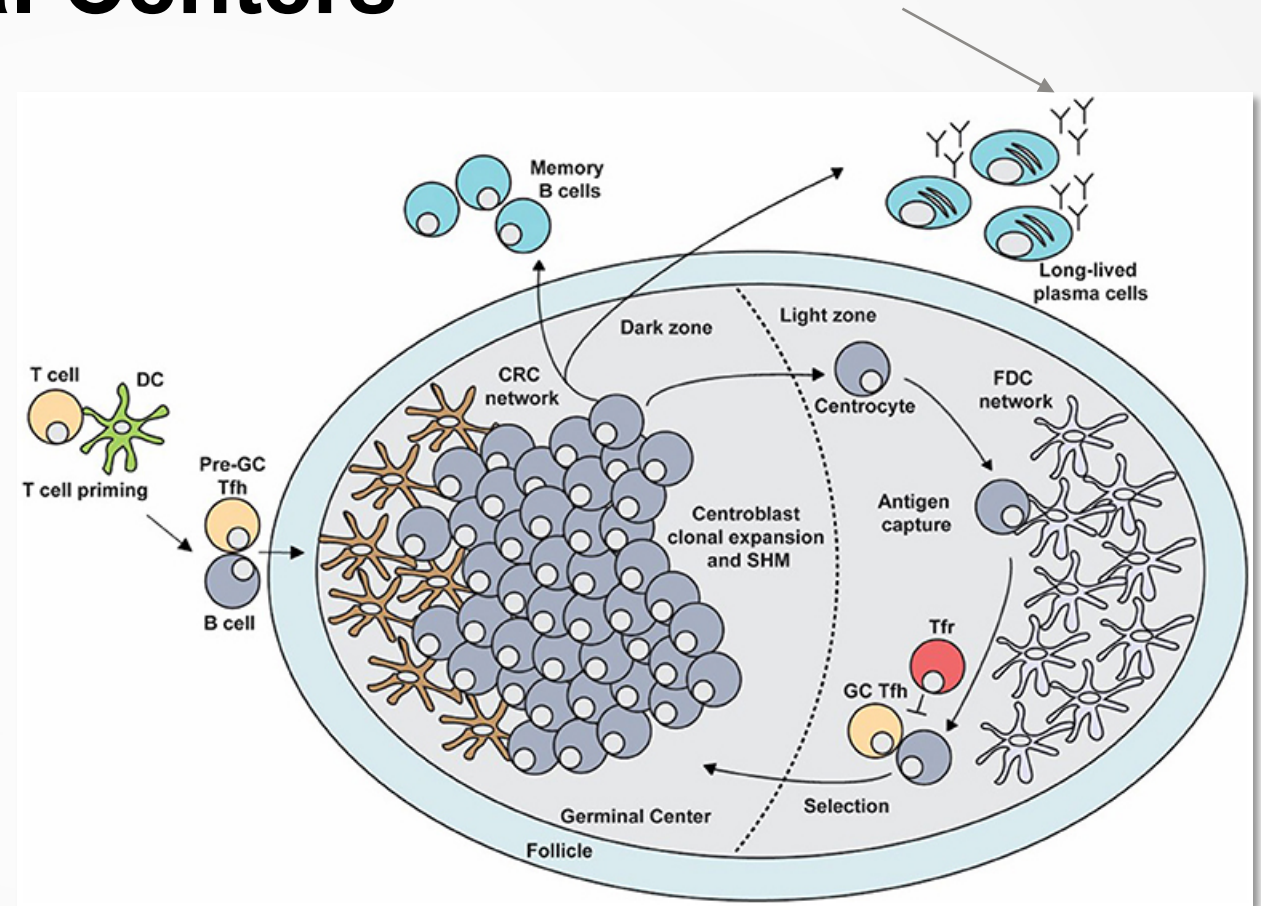


TAMG
10-15% of MG patients have thymoma



Ectopic Germinal Centers

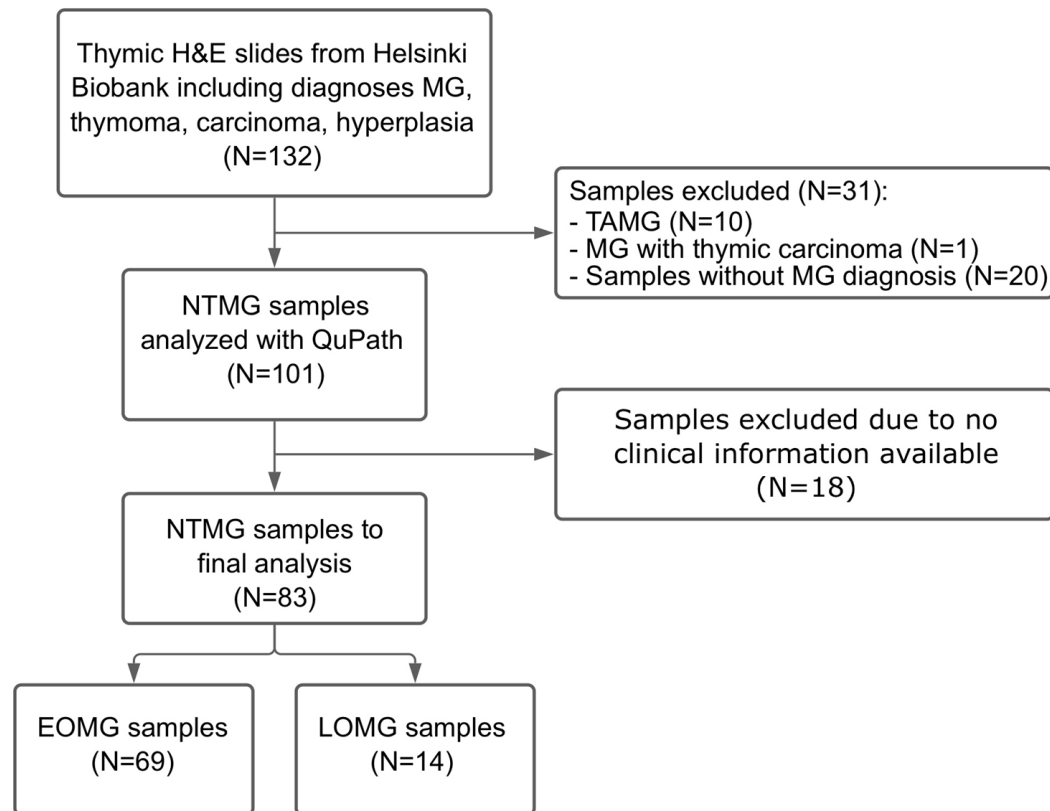
- Result of Chronic Inflammation
 - Autoimmune diseases
 - Cancer
- Double-Edged Sword
- B cells differentiate and start producing high amounts of antibodies



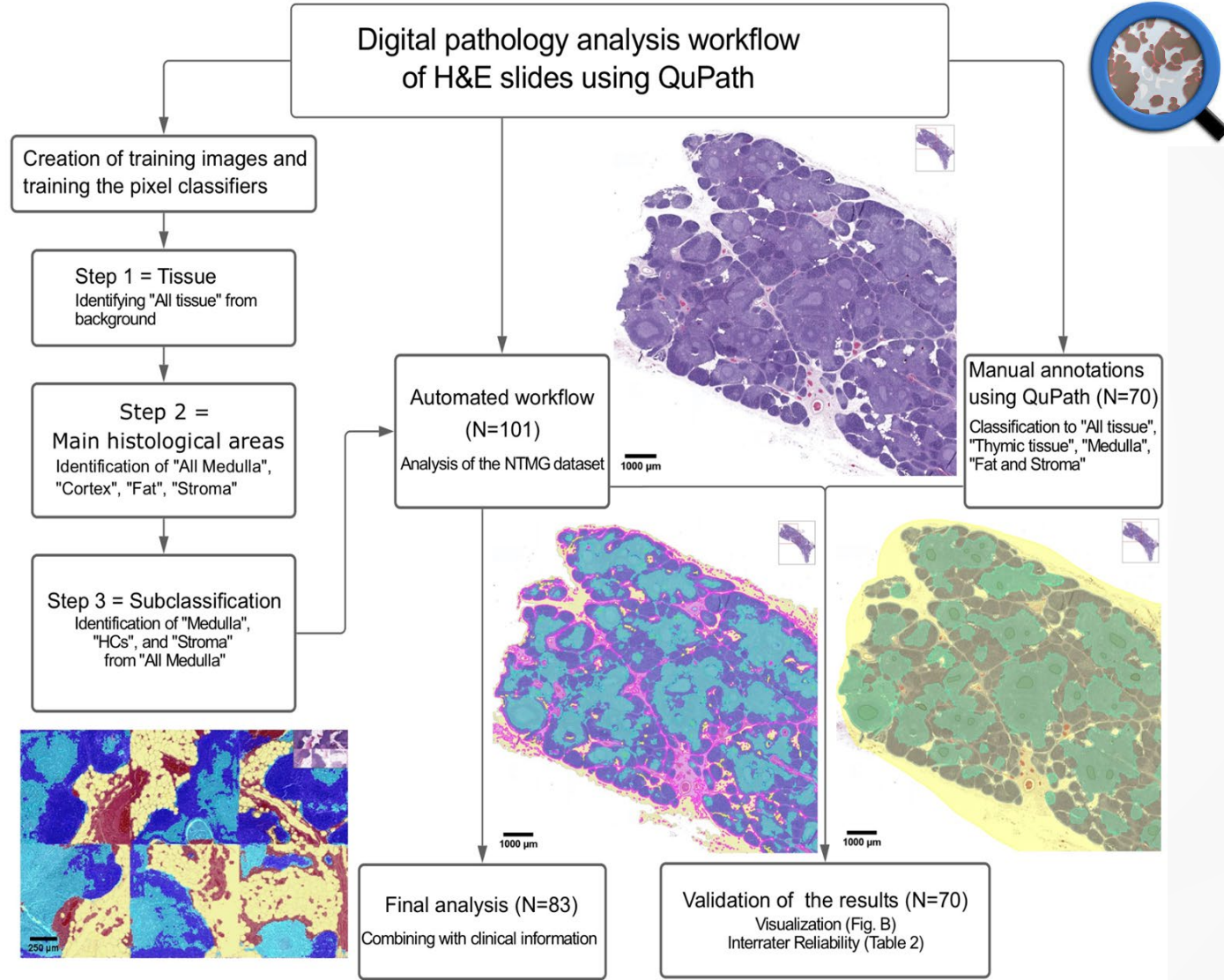
Regulation of the Germinal Center Response, Stebegg et al, Frontiers in Immunology, 2018



Histologic analysis of 83 NTMG thymic slides

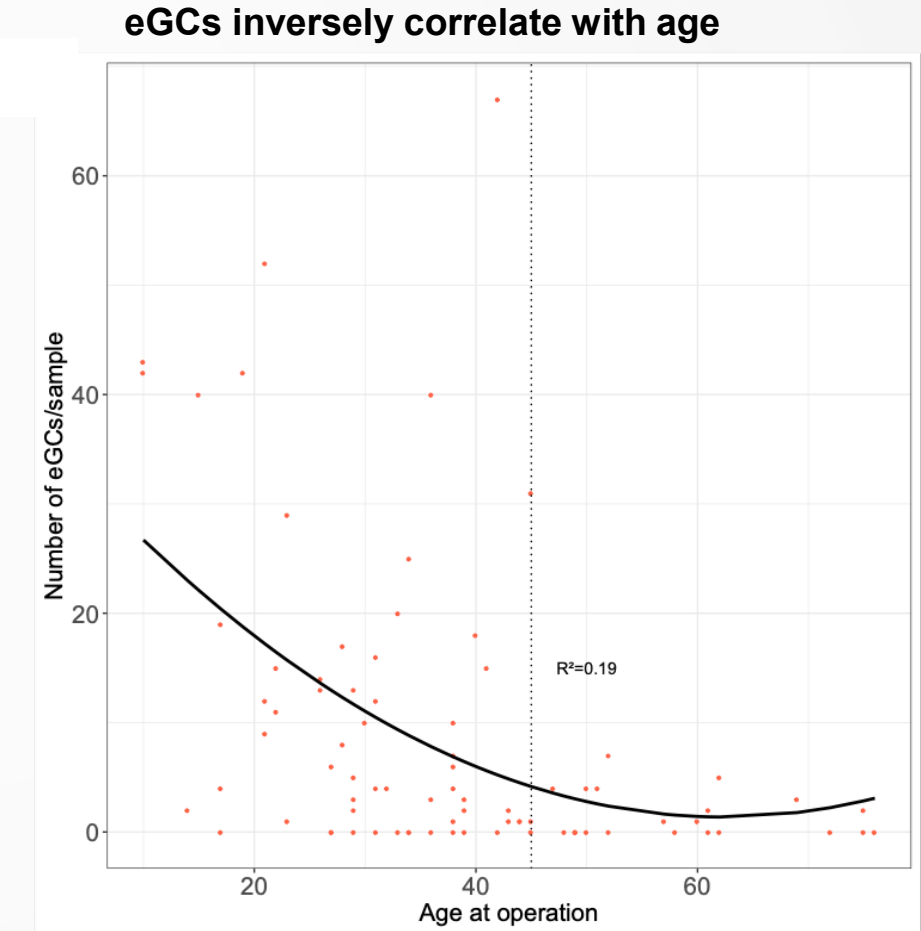
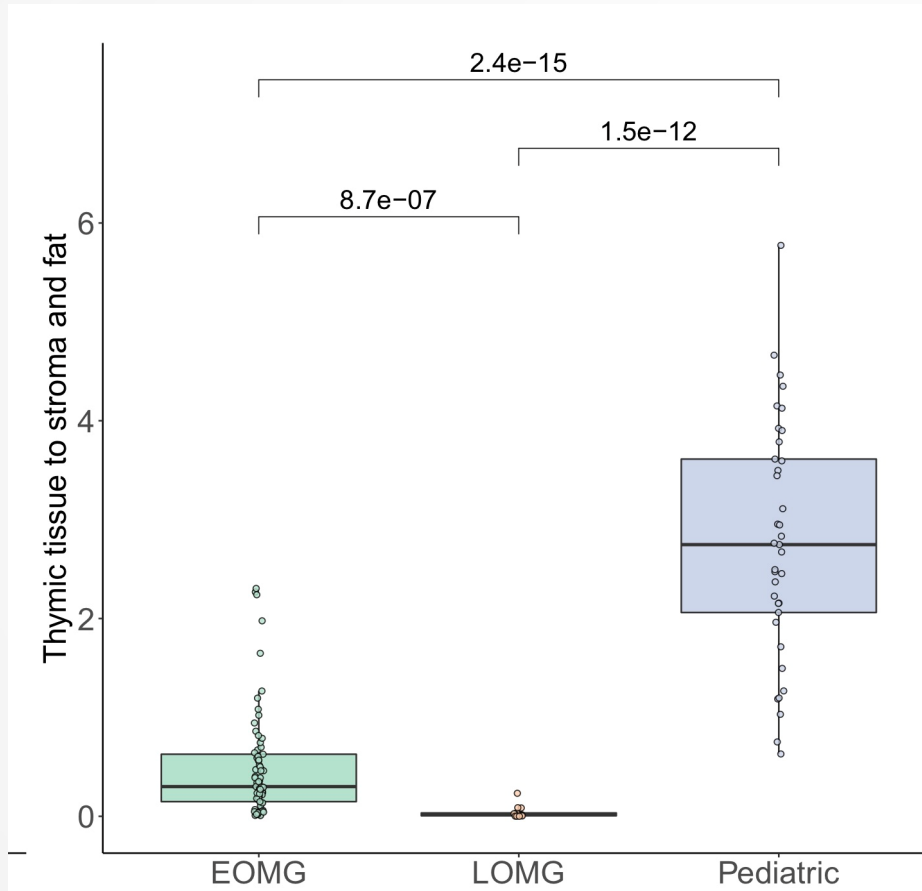


	EOMG (N=69)	LOMG (N=14)
Gender		
Female	63 (91 %)	4 (29 %)
Male	6 (9 %)	10 (71 %)
Age at diagnosis		
Mean (SD)	32 (± 10)	62 (± 8.9)
Age at thymectomy		
Mean (SD)	33 (± 11)	64 (± 8.4)
AChRAb		
Negative	14 (20 %)	3 (21 %)
Positive	47 (68 %)	10 (71 %)
Missing	8 (11.6%)	1 (7.1%)
Thymic pathology		
Normal	18 (26 %)	12 (86 %)
Hyperplasia	51 (74 %)	2 (14 %)
Ocular vs generalized		
Ocular	6 (9 %)	2 (14 %)
Generalized	63 (91 %)	12 (86 %)



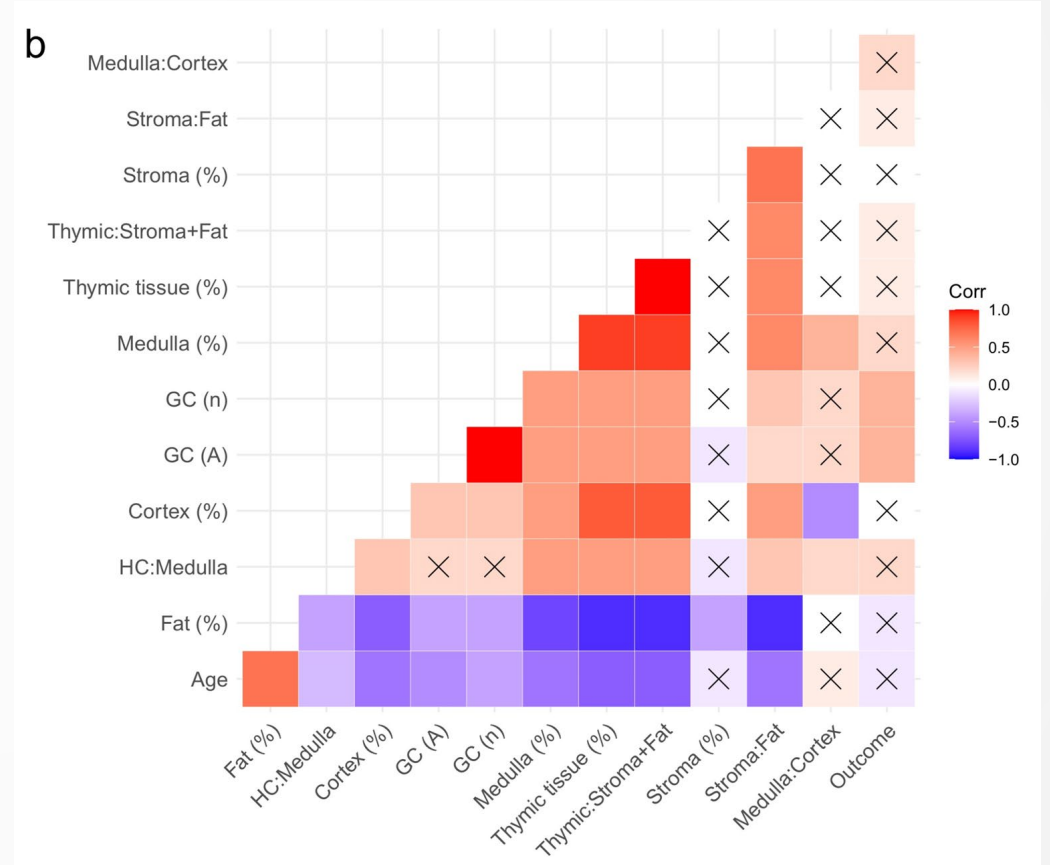
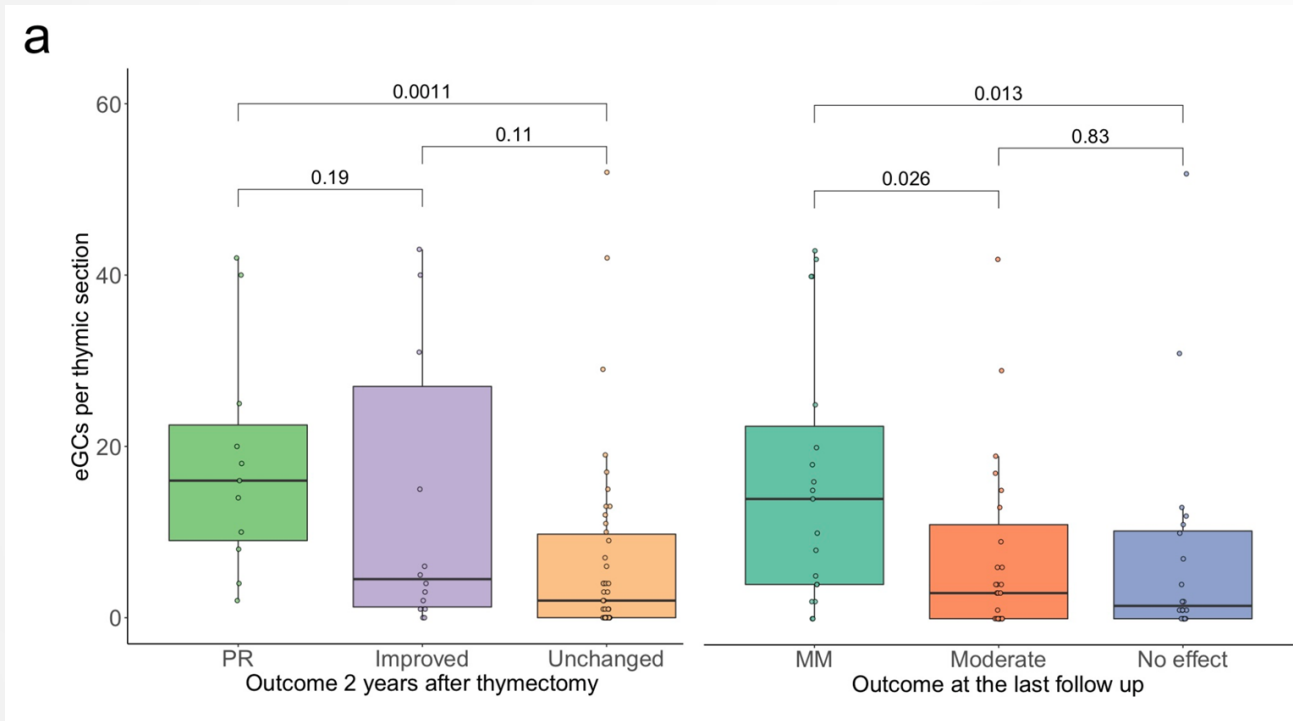


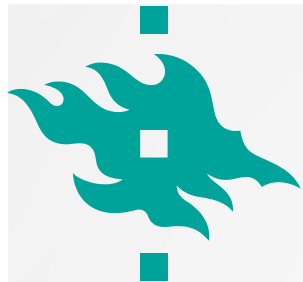
Thymic tissue and eGCs are more common in EOMG than in LOMG



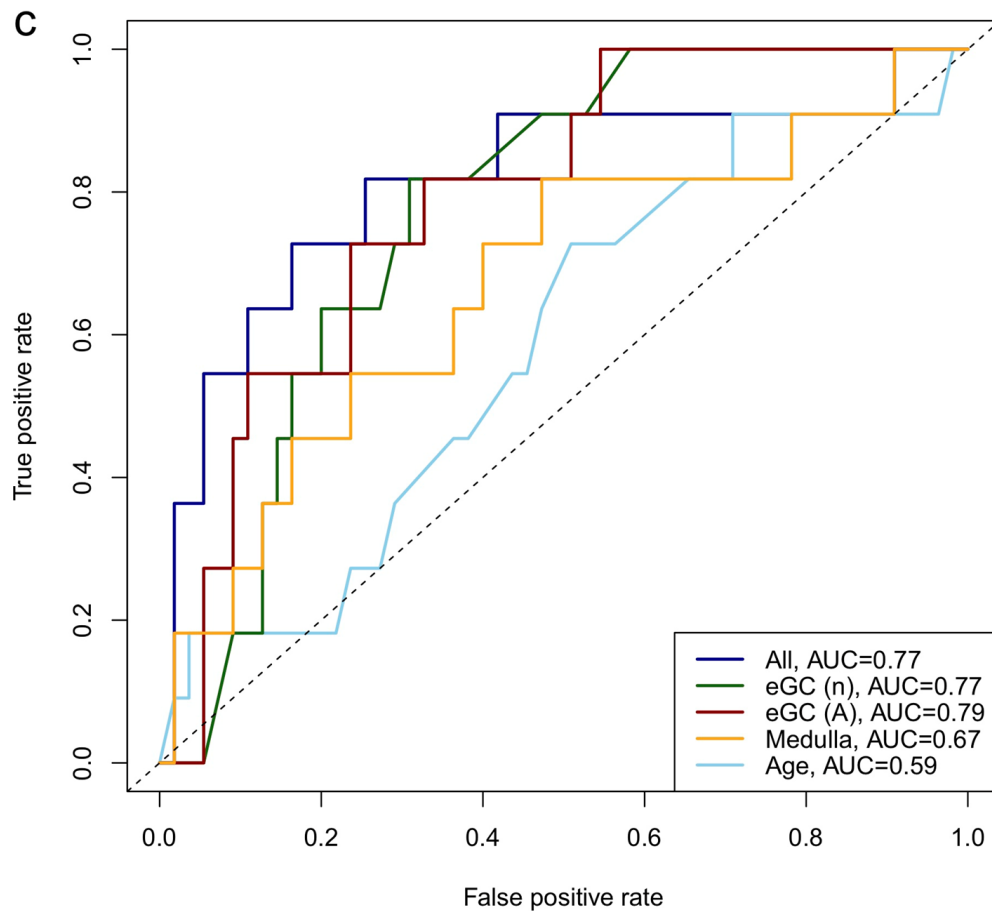


Number of eGCs correlate with better outcome in EOMG after thymectomy



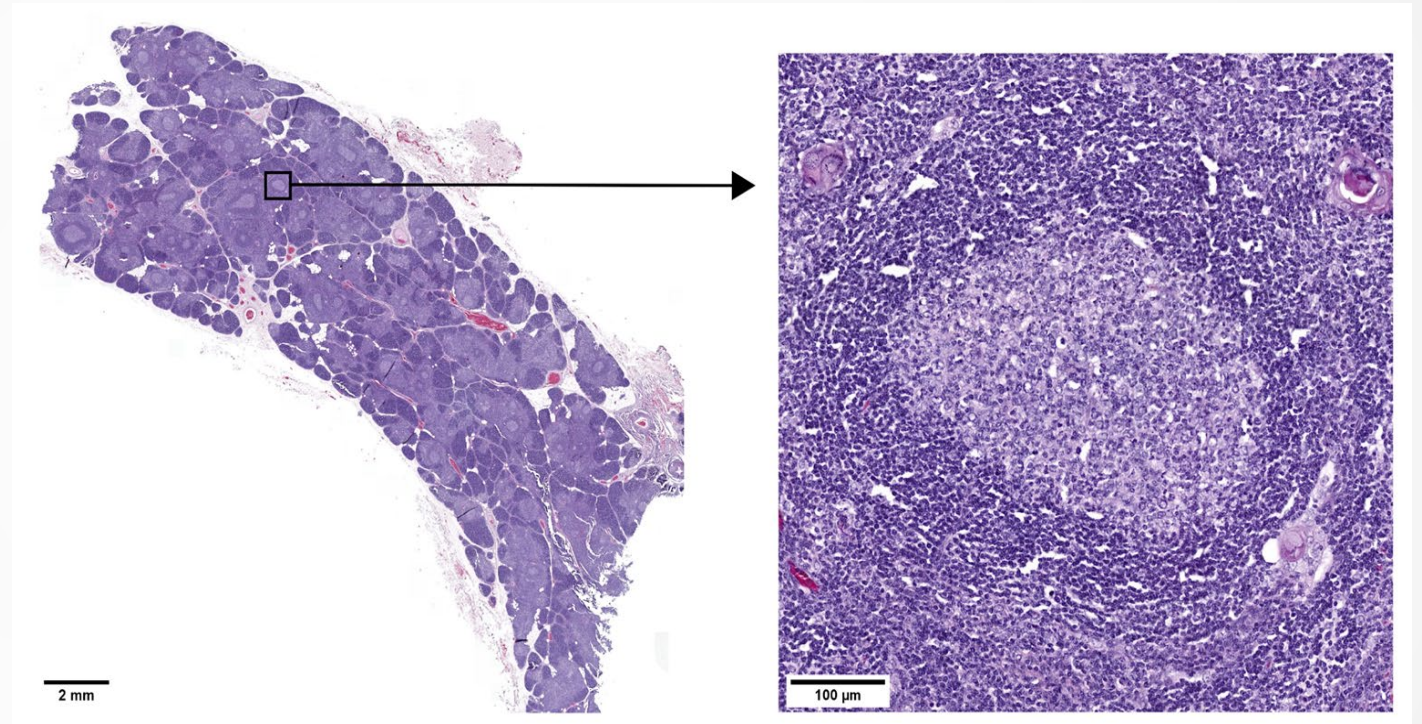


Number of eGCs in the thymus predict prognosis of EOMG after thymectomy



Conclusions

- Ectopic germinal centers correlate with better postoperative outcome after thymectomy
- The number of ectopic germinal centers could be used to predict postoperative outcome





60° 10 1.2 N, 24° 57 18 E