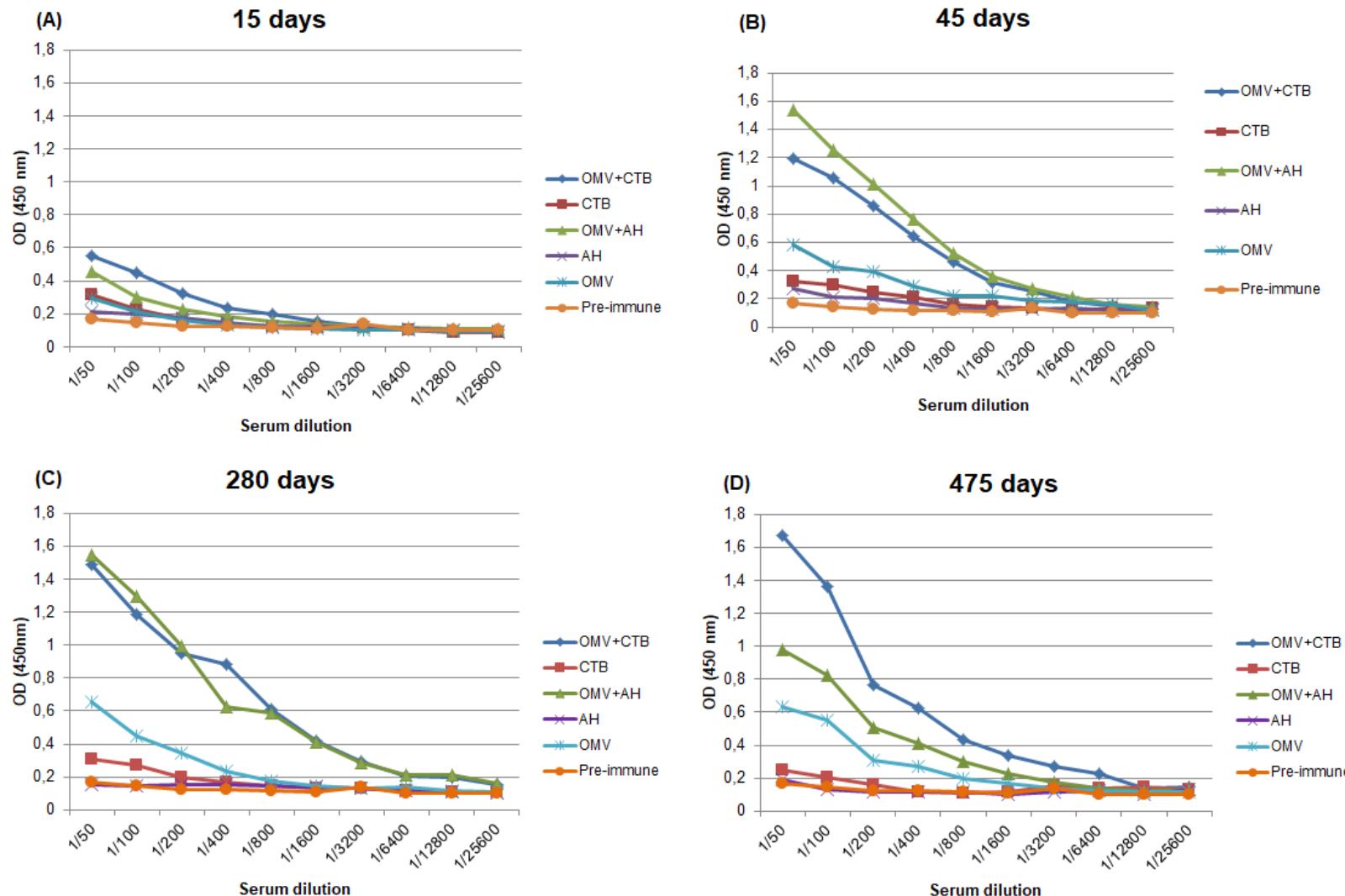


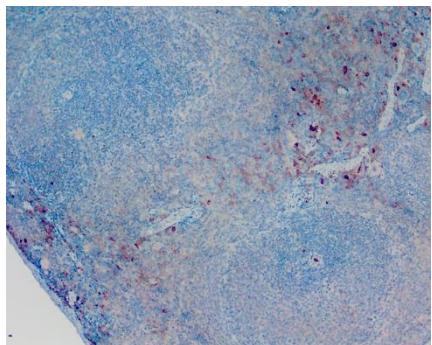
Suppl. 1. Titration curve of samples collected (A) 15, (B) 45, (C) 280 and (D) 475 after the beginning of immunization. The curves refer to the mean absorbance of each group.



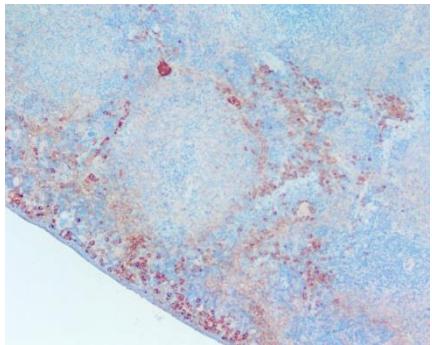
Suppl. 2. *N. meningitidis* strains tested in Dot-blot to verify the recognition of different phenotypes by immune sera.

| | |
|-----------------|----------------|
| C:2a:P1.5 | B:19,1:P1.22,1 |
| B:4,7:P1.19,15 | W:2a:P1.5,2 |
| C:23:P1.14,6 | C:2a:nt |
| W:2a:P1.2 | B:4,7:P1.4 |
| B:19,1:nt | Y:17,7:P1.5 |
| C:2a:P1.15 | Y:2c:P1.3 |
| W:2b:P1.5,2 | W:2a:nt |
| B:19,1:P1.19,15 | Y:22:P1.3 |
| B:19,7:nt | Y:19,10:P1.9 |
| C:4:P1.14,6 | Y:17,7:nt |
| C:23:nt | C:4,7:P1.19,15 |

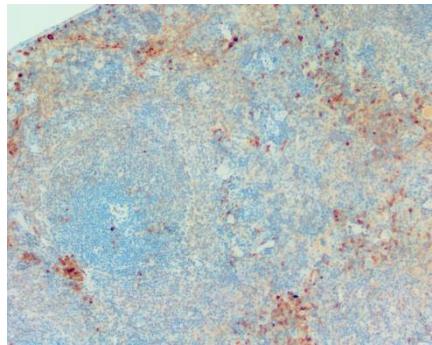
Suppl. 3. The images represent the levels (1+, 2+, 3+, 4+) of IHC marking at a 100x magnification, considered for semi quantitative analysis.



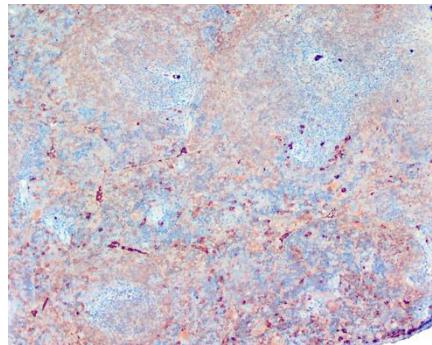
1+ (0-25%)



2+ (26-50%)

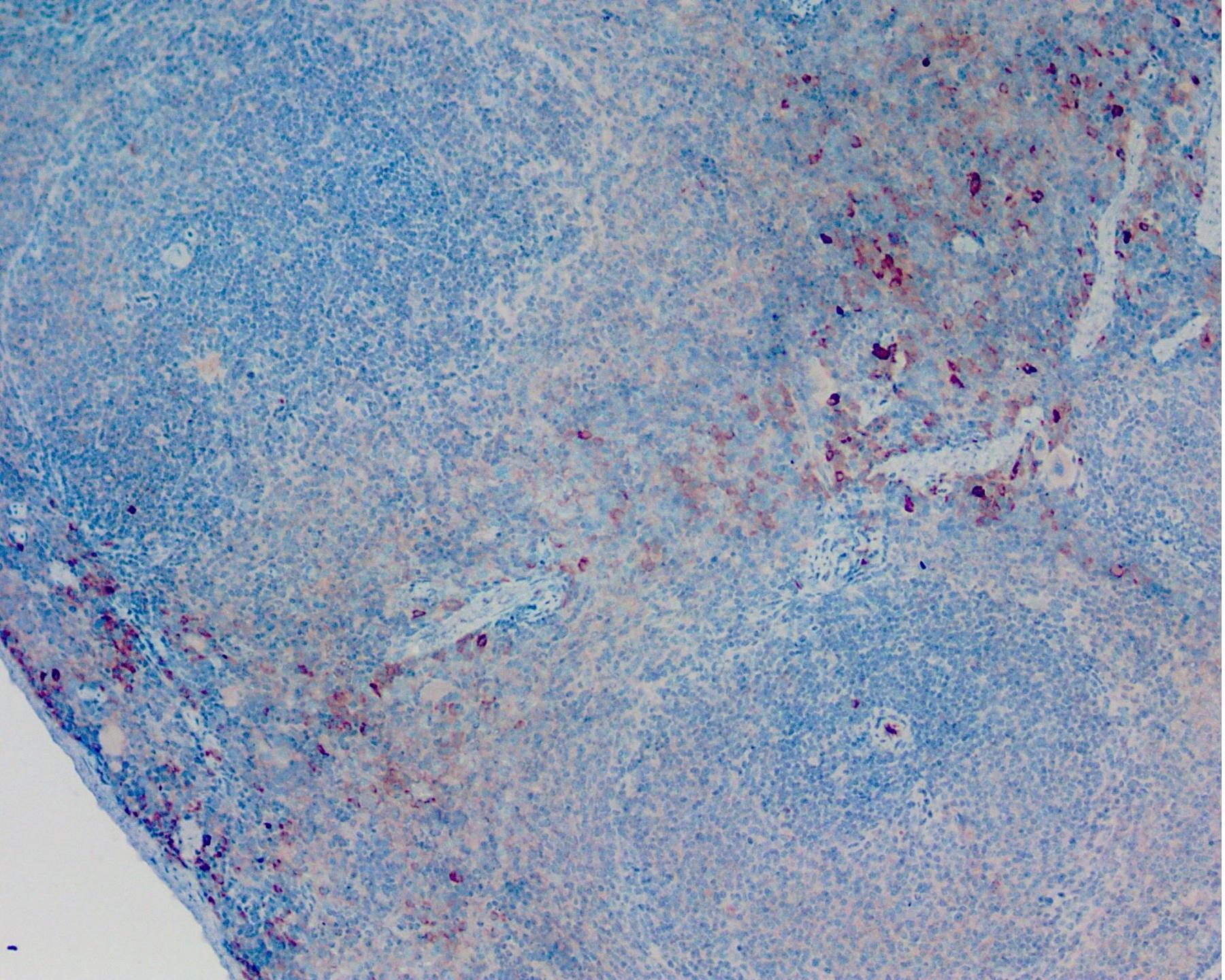


3+ (51-75%)



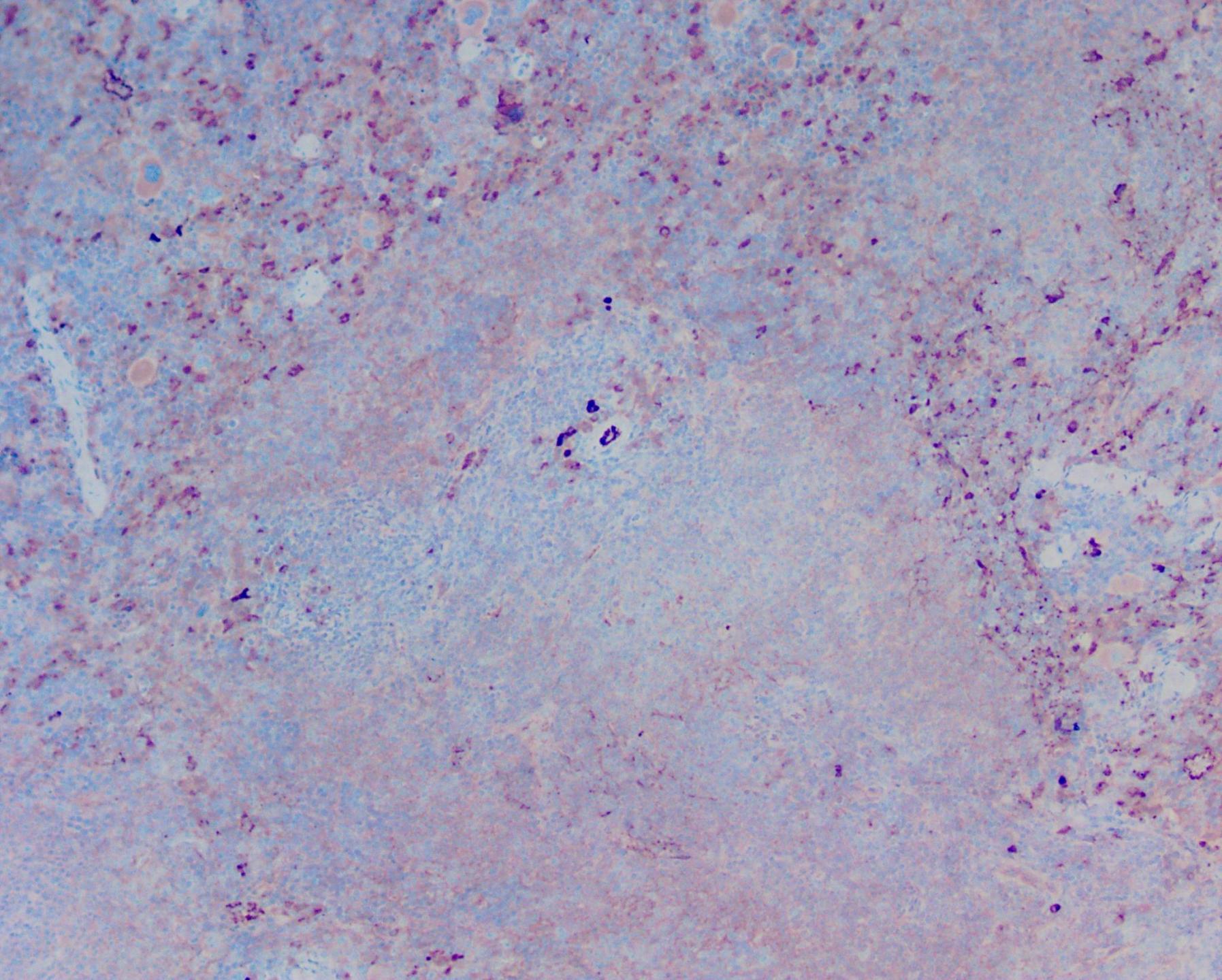
4+ (76-100%)

Suppl. 4. Representative figures of IHC reaction of each marker (CD68, CD4, CD79, CD25) in each group analyzed (OMV+CTB, CTB, OMV+AH, AH, OMV and naïve), at a 100x magnification.



OMV+CTB
CD68+
100x

CTB
CD68+
100x

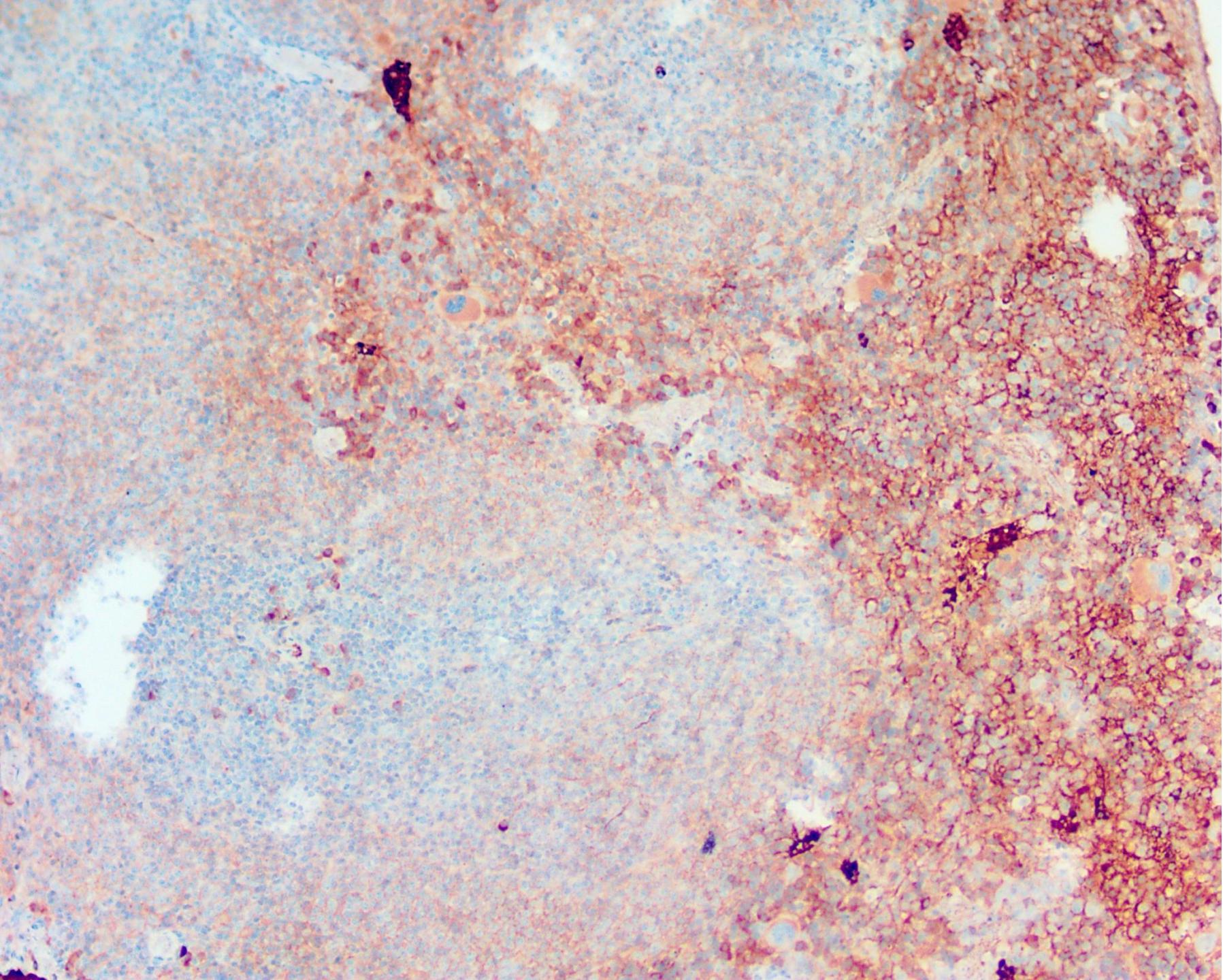


This image consists of two side-by-side micrographs of tissue sections. The left panel shows a low-magnification view with a blue background, where red-stained cellular structures are visible. The right panel is a higher magnification view of a similar area, showing more detail of the red-stained cells. A scale bar of 100 μ m is present in the bottom right corner of the right panel.

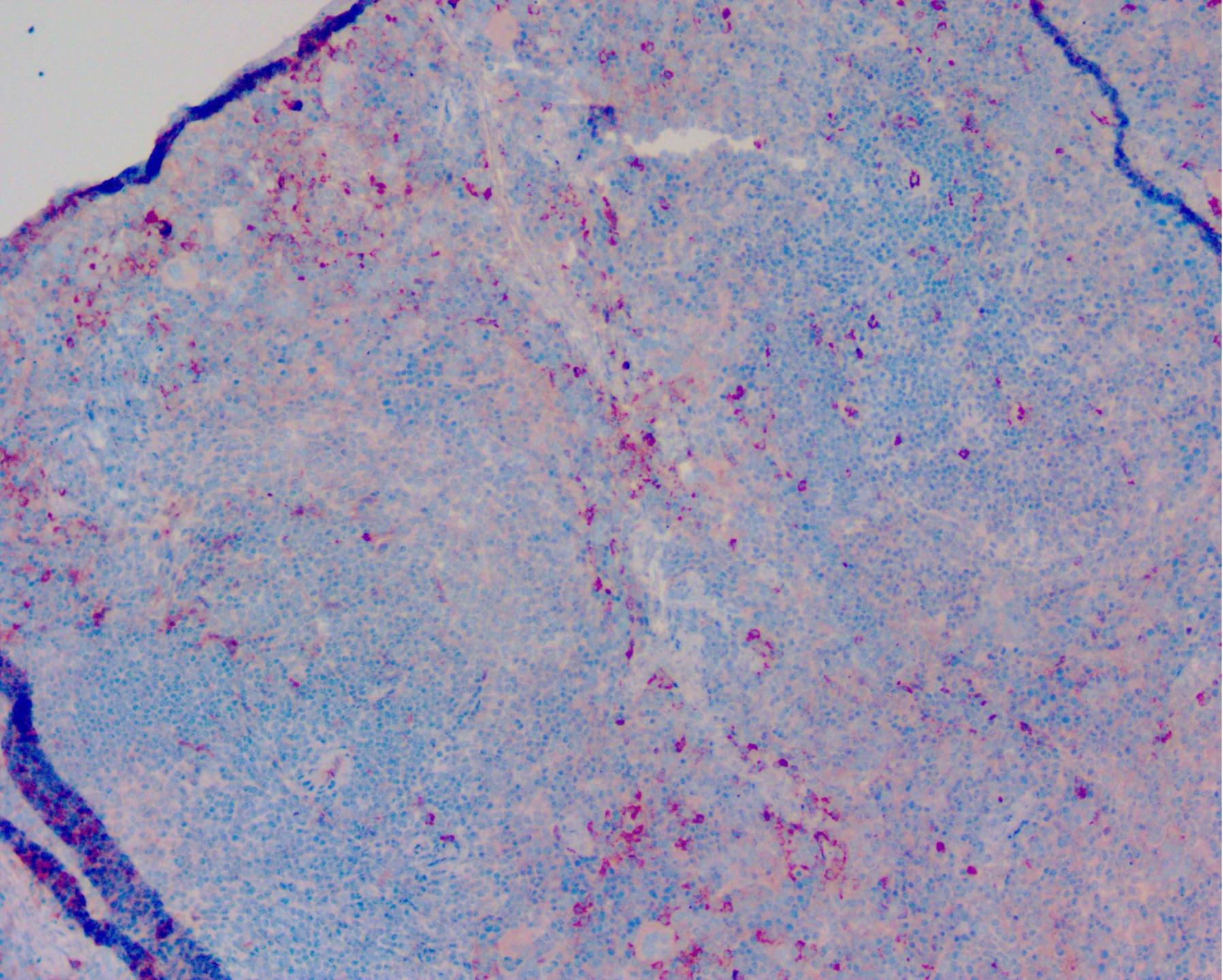
OMV+AH
CD68+
100 μ

AH
CD68+
100x

This micrograph shows a tissue section with a dense cellular infiltrate. The nuclei are stained blue, and the cytoplasm of many cells contains reddish-brown granules, indicating positive staining for the macrophage marker CD68. The overall density of cells and staining intensity is higher towards the right side of the image.

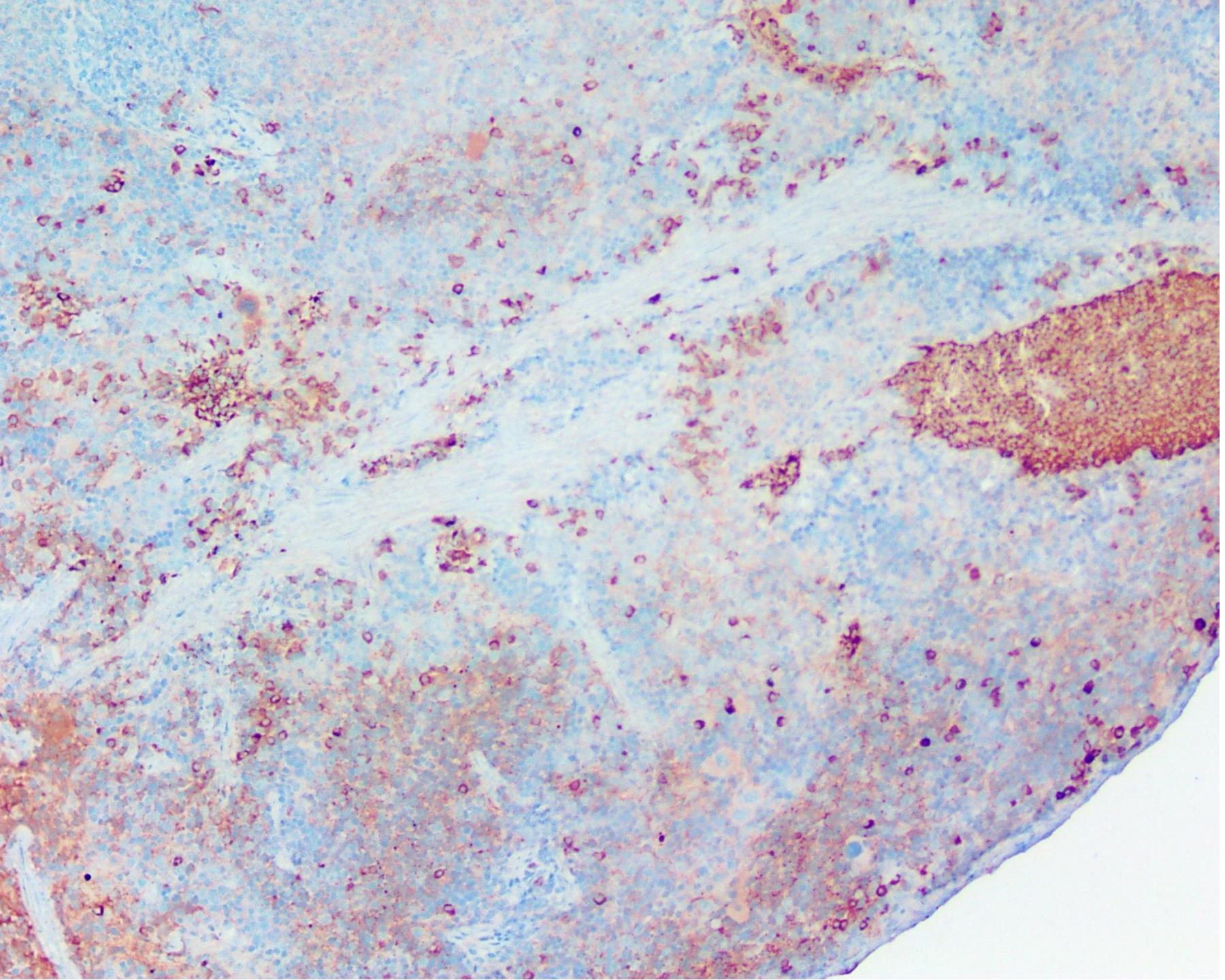


OMV
CD68+
100x



Naïve
CD68+
100x

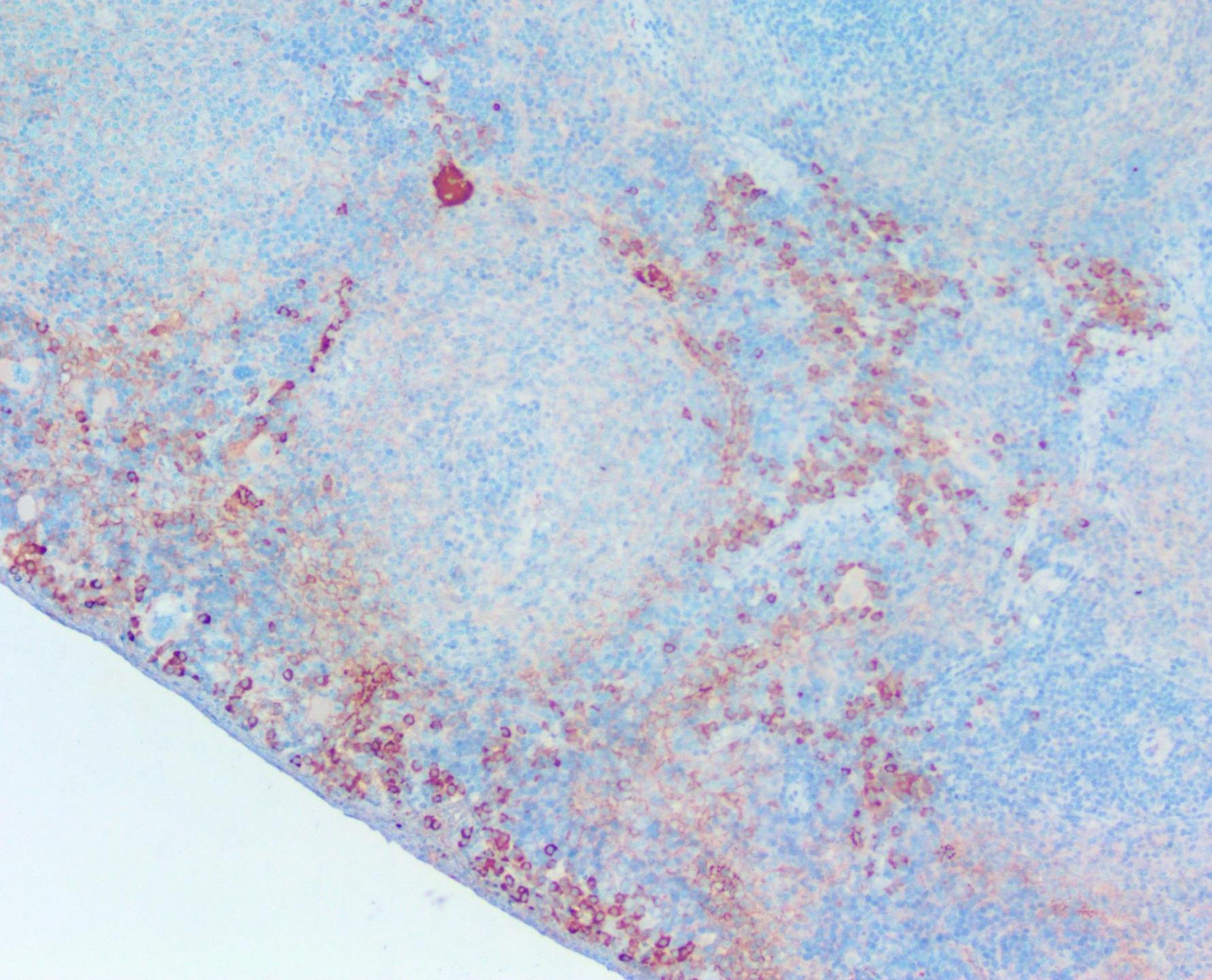
This image shows a histological section stained with anti-CD68 antibody. The tissue is primarily blue, indicating hematoxylin staining of nuclei. Red punctate staining, characteristic of macrophages and dendritic cells, is visible throughout the field. A prominent red-stained area is located in the upper left corner, likely representing a tissue repair or inflammatory response. The overall pattern suggests a low-magnification view of a tissue sample.



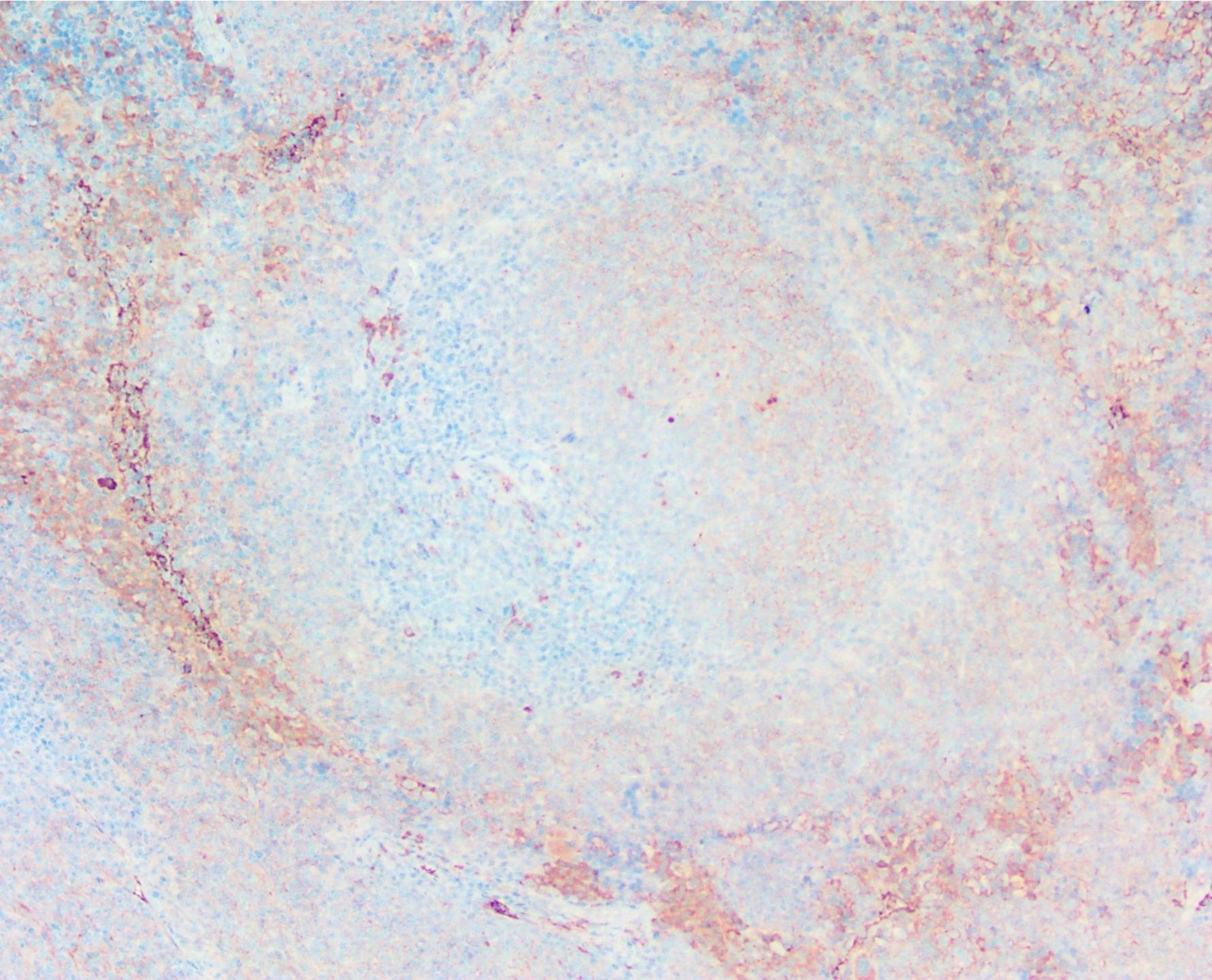
OMV+CTB
CD4+
100x

This micrograph displays a tissue section with a complex pattern of staining. A dense network of fibers, primarily red/orange, is visible against a blue-stained background. Within this network, numerous small, dark purple spots are scattered, representing the location of CD4+ cells. Some larger, more intensely stained areas are also present, likely indicating higher concentrations of both tracer and target cells.

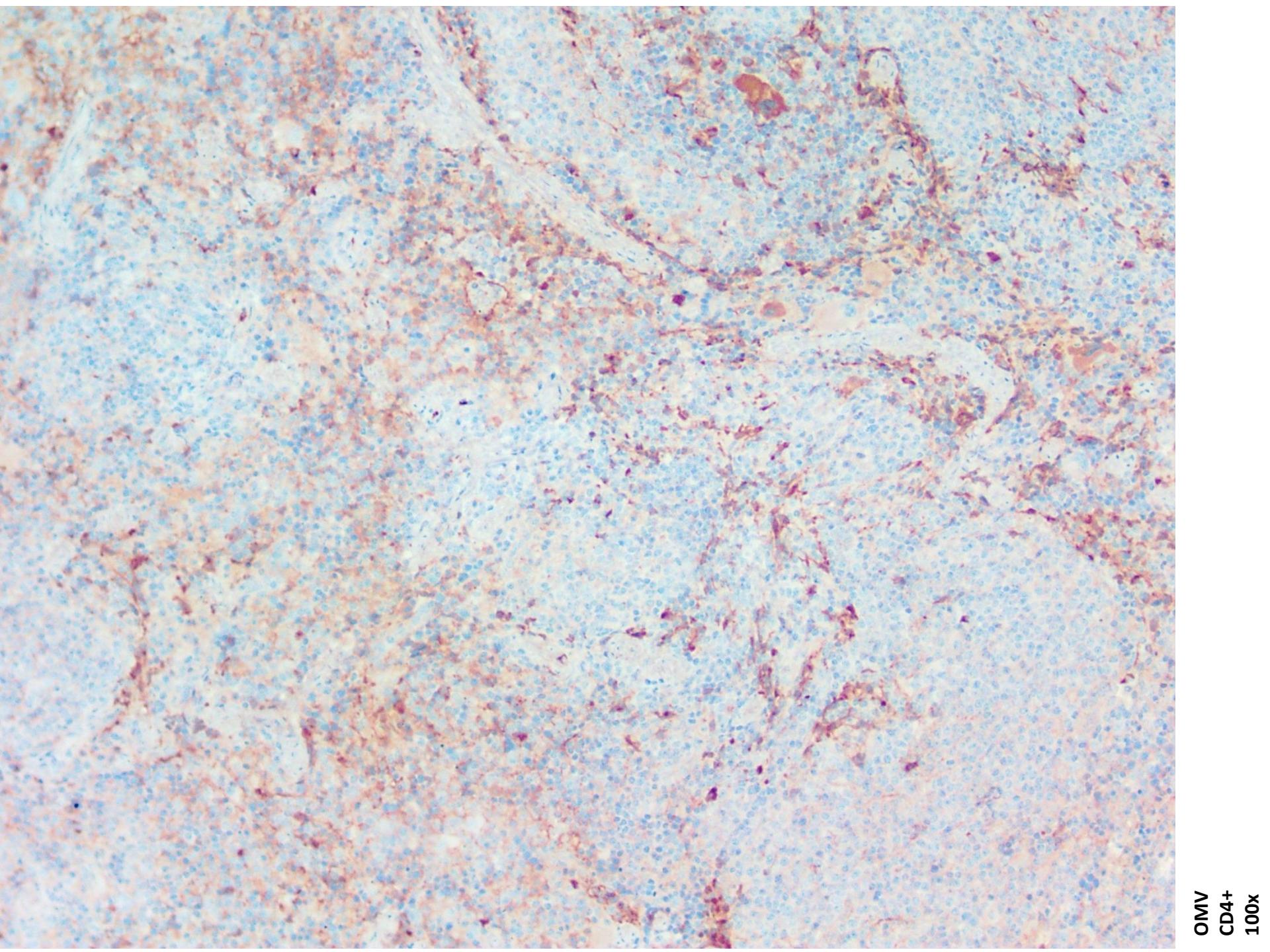
CTB
CD4+
100x



OMV+AH
CD4+
100x

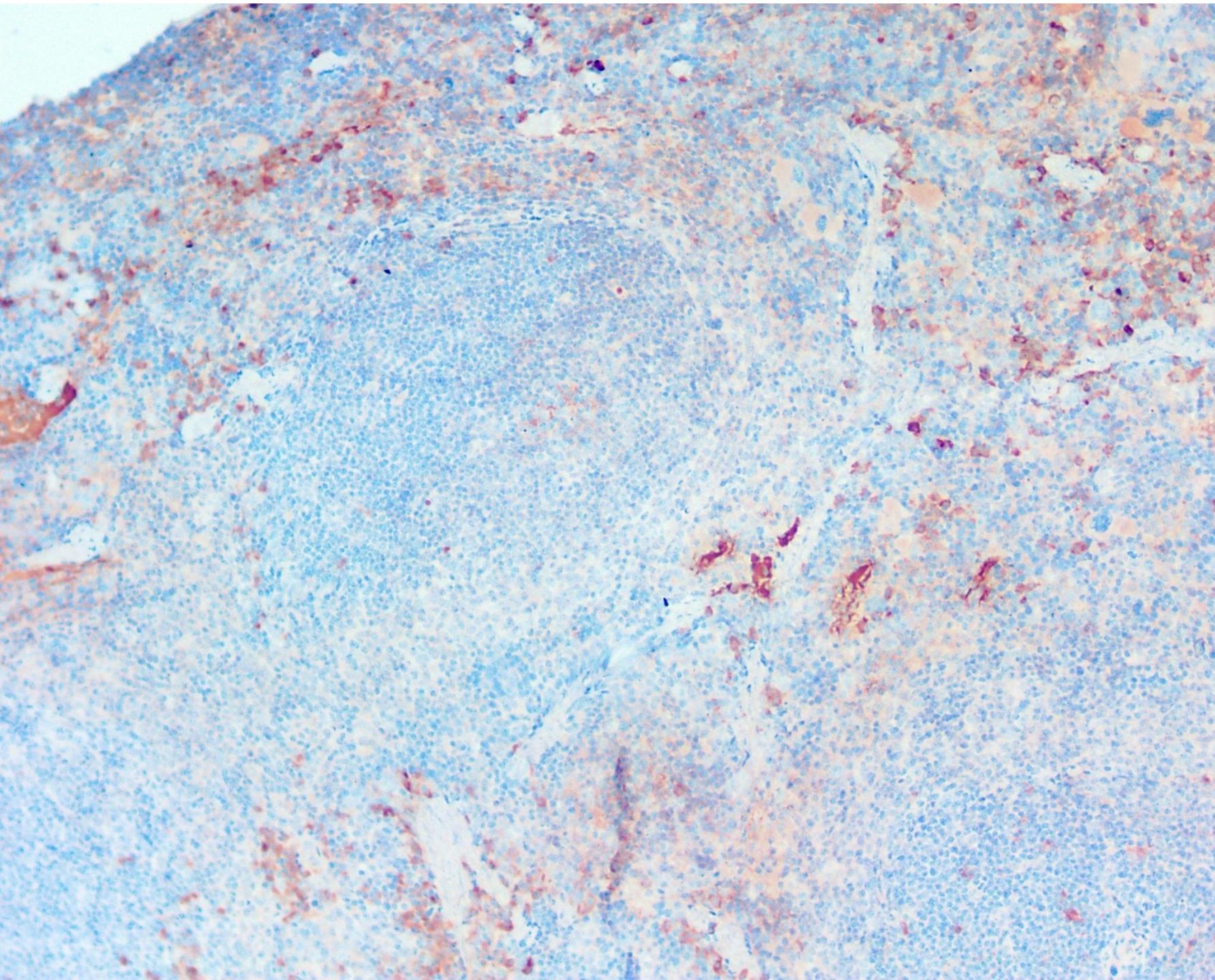


AH
CD4+
100x

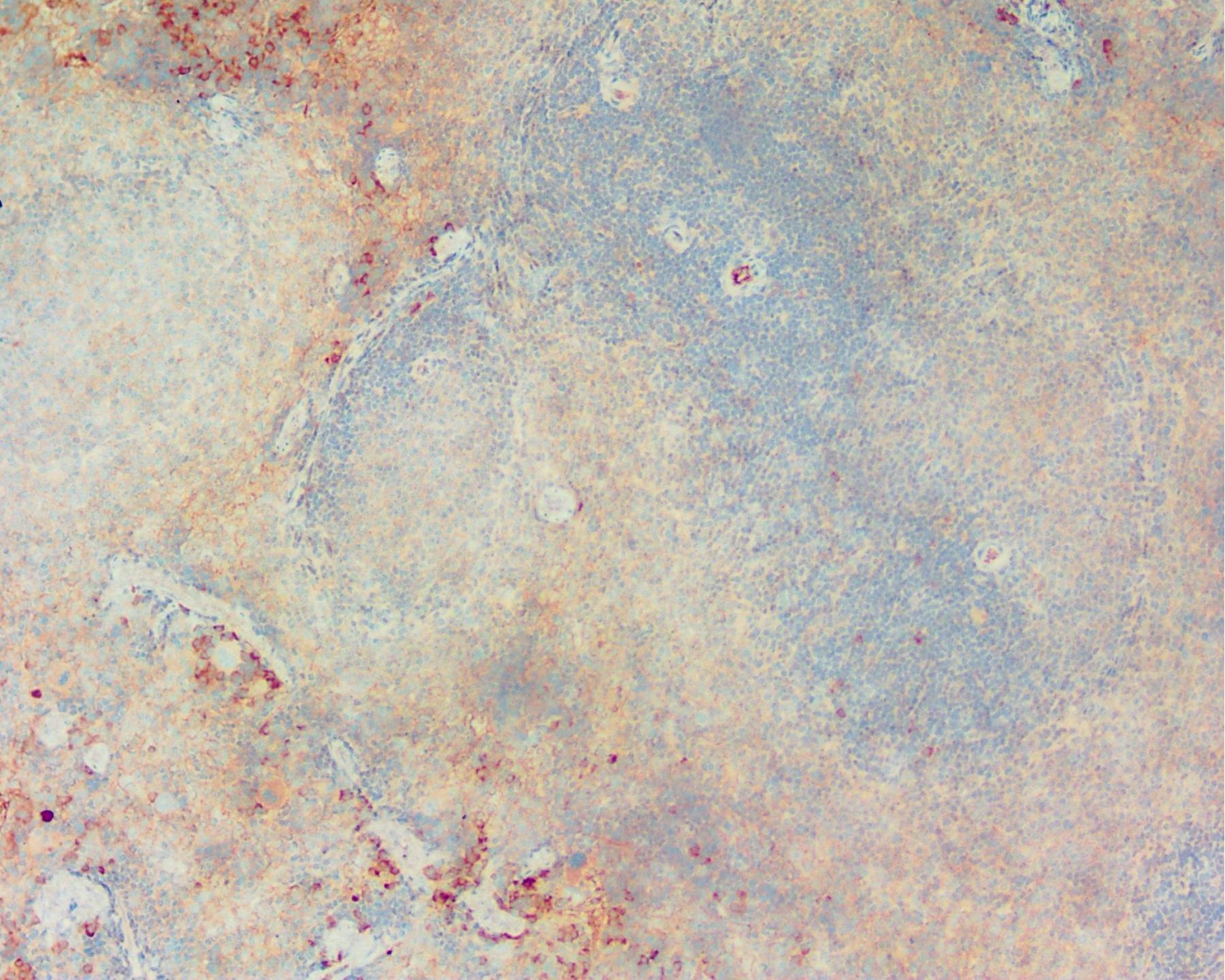


OMV
CD4+
100x

This micrograph displays a tissue section stained with hematoxylin and immunohistochemical markers. The background is a light blue color, characteristic of hematoxylin staining. Scattered throughout the field are numerous small, dark reddish-brown spots and larger, more confluent reddish-brown areas, which represent the presence of outer membrane vesicles (OMVs) and CD4+ cells. These stained structures appear to be associated with cellular membranes or extracellular vesicle clusters. The overall pattern suggests a cellular infiltrate or specific viral infection.



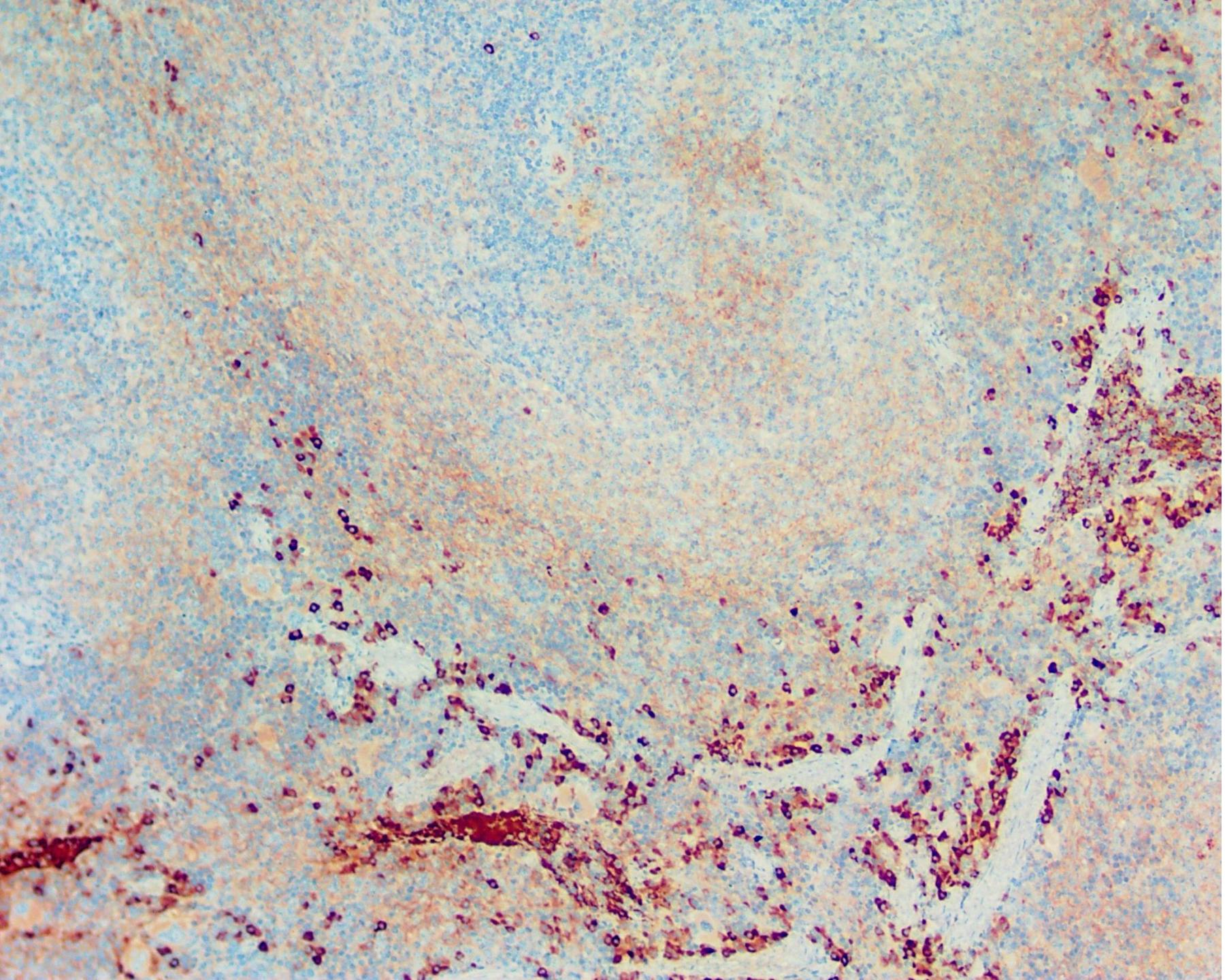
Naïve
CD4+
100x



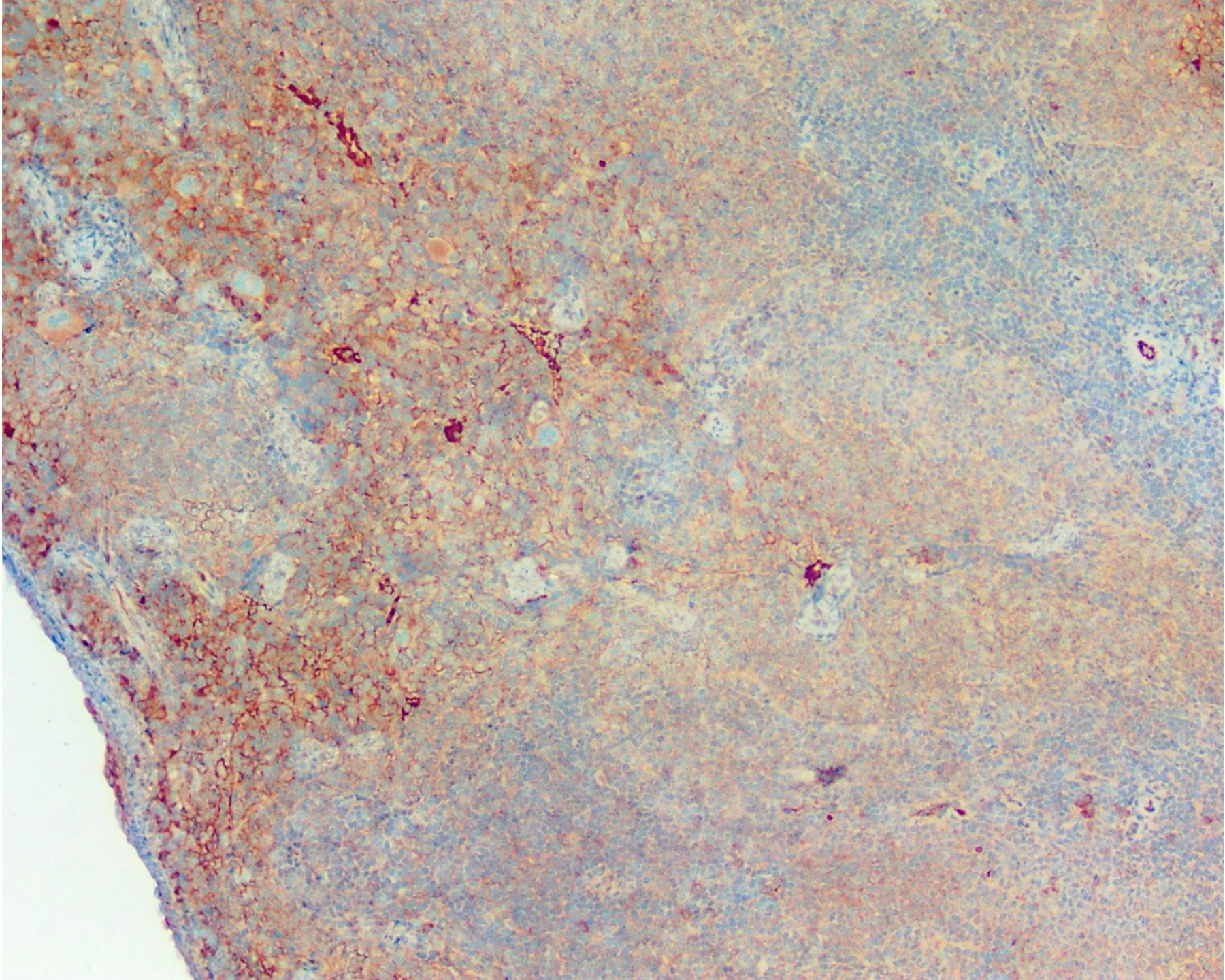
OMV+CTB
CD79+
100x

CTB
CD79+
100x

This micrograph displays a tissue section stained with two markers. The primary marker, Cholera Toxin B (CTB), is visualized as numerous small, bright red puncta distributed throughout the field. A secondary marker, CD79+, is used to stain the nuclei of certain cells, appearing as larger, more diffuse blue-stained areas. These blue-stained regions often contain multiple red puncta, suggesting they represent specific types of cells or cellular compartments. The overall pattern suggests a complex interaction between different cell populations in the tissue.

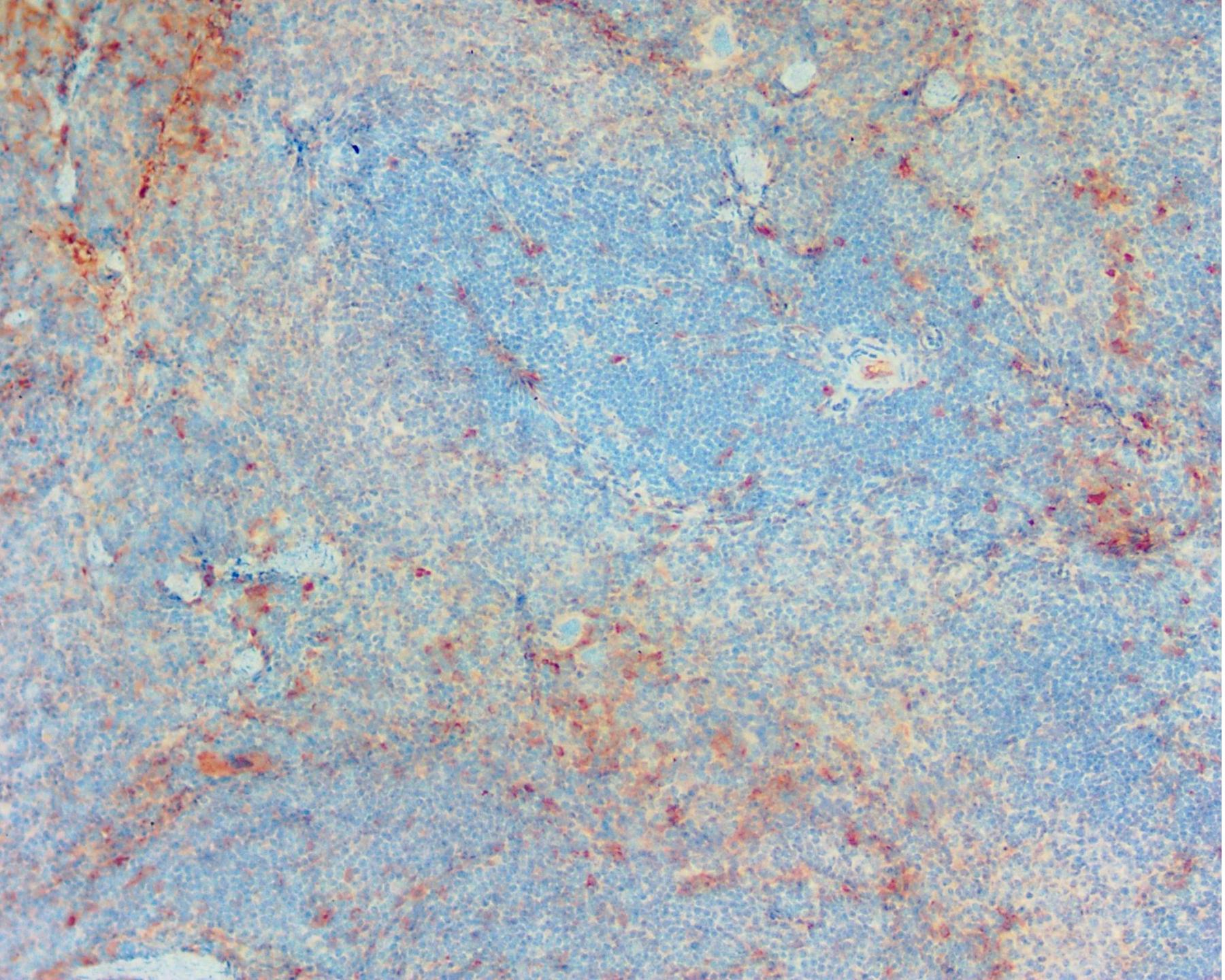


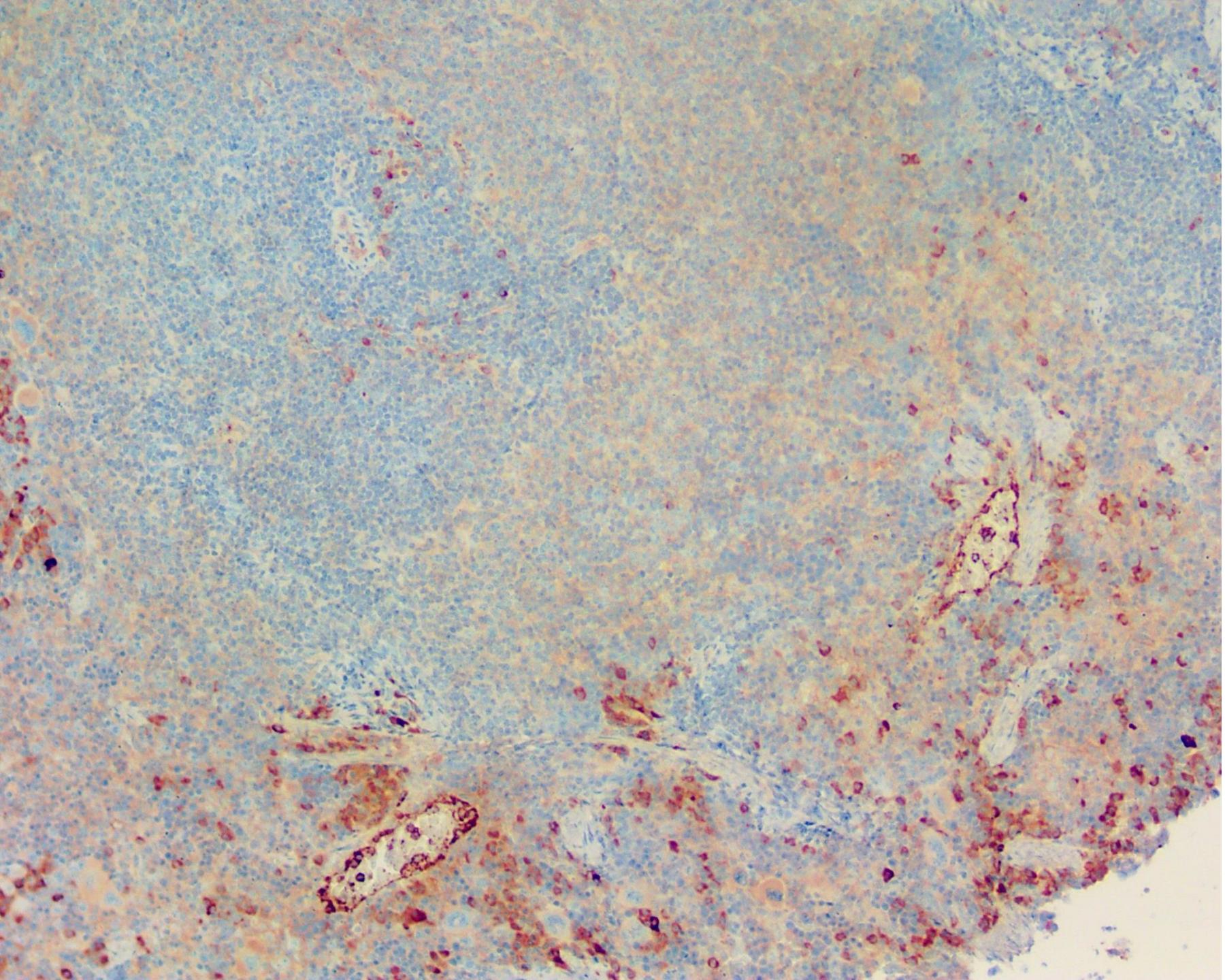
OMV+AH
CD79+
100x



OMV
CD79+
100x

Naïve
CD79+
100x

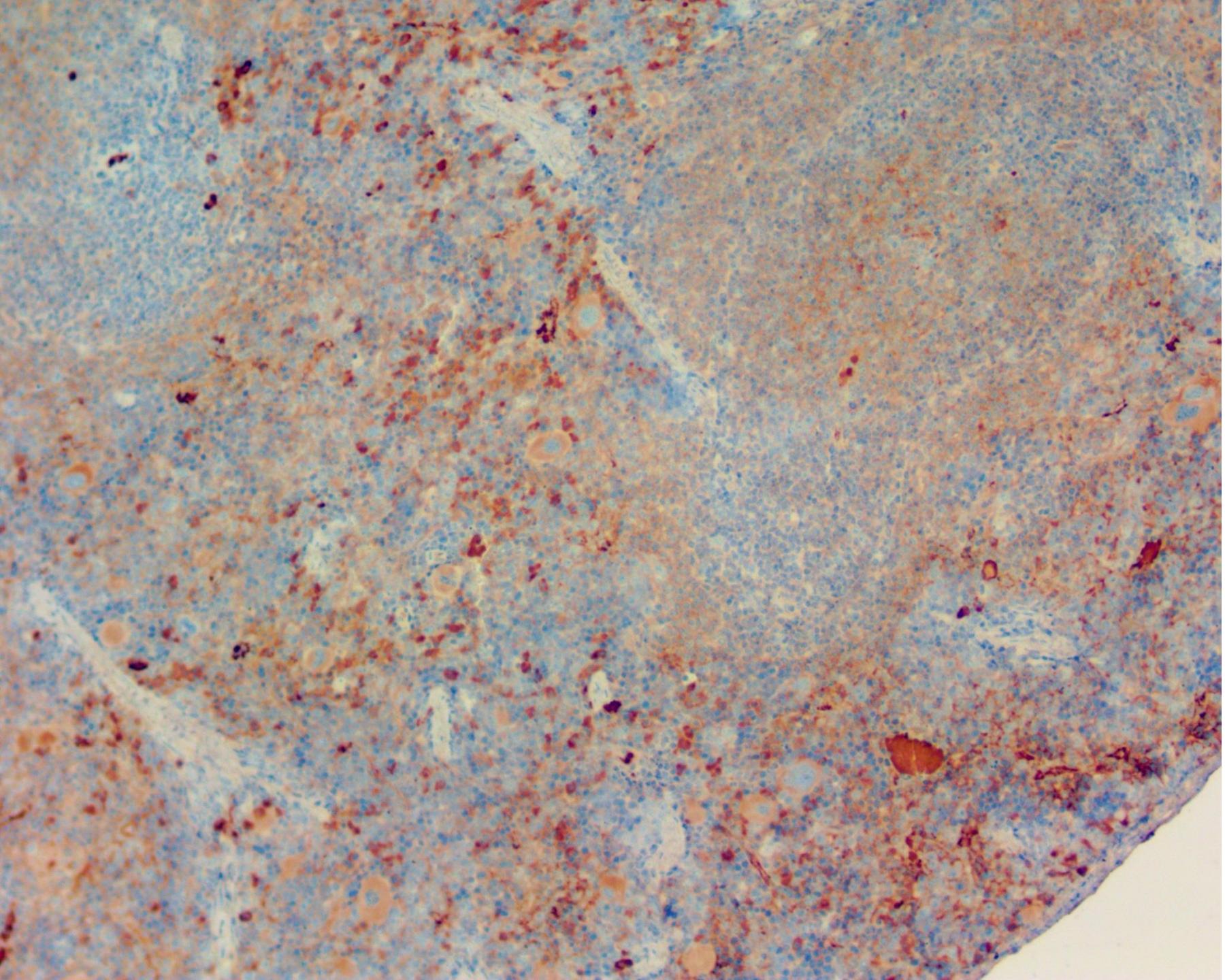




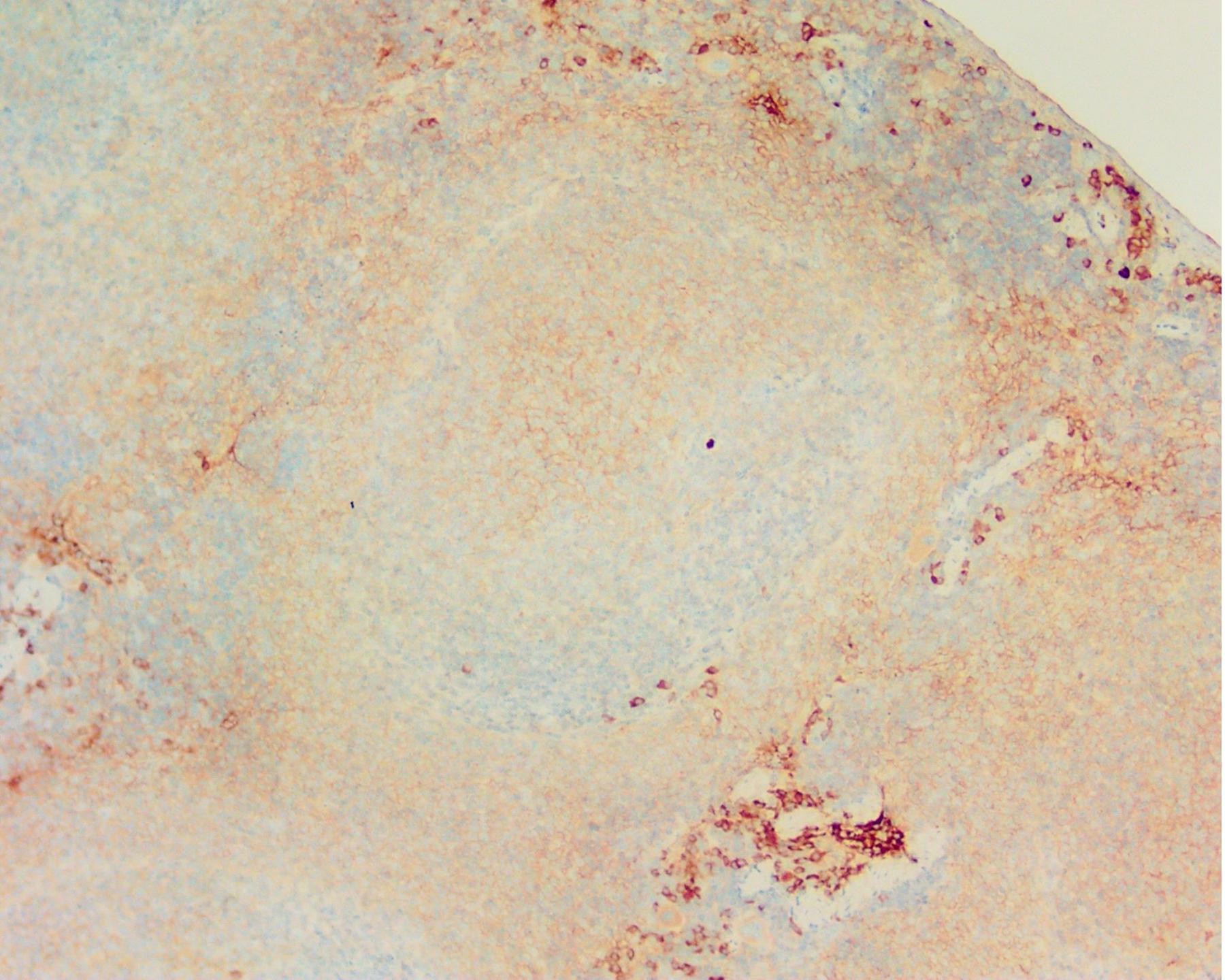
OMV+CTB+

CD25+

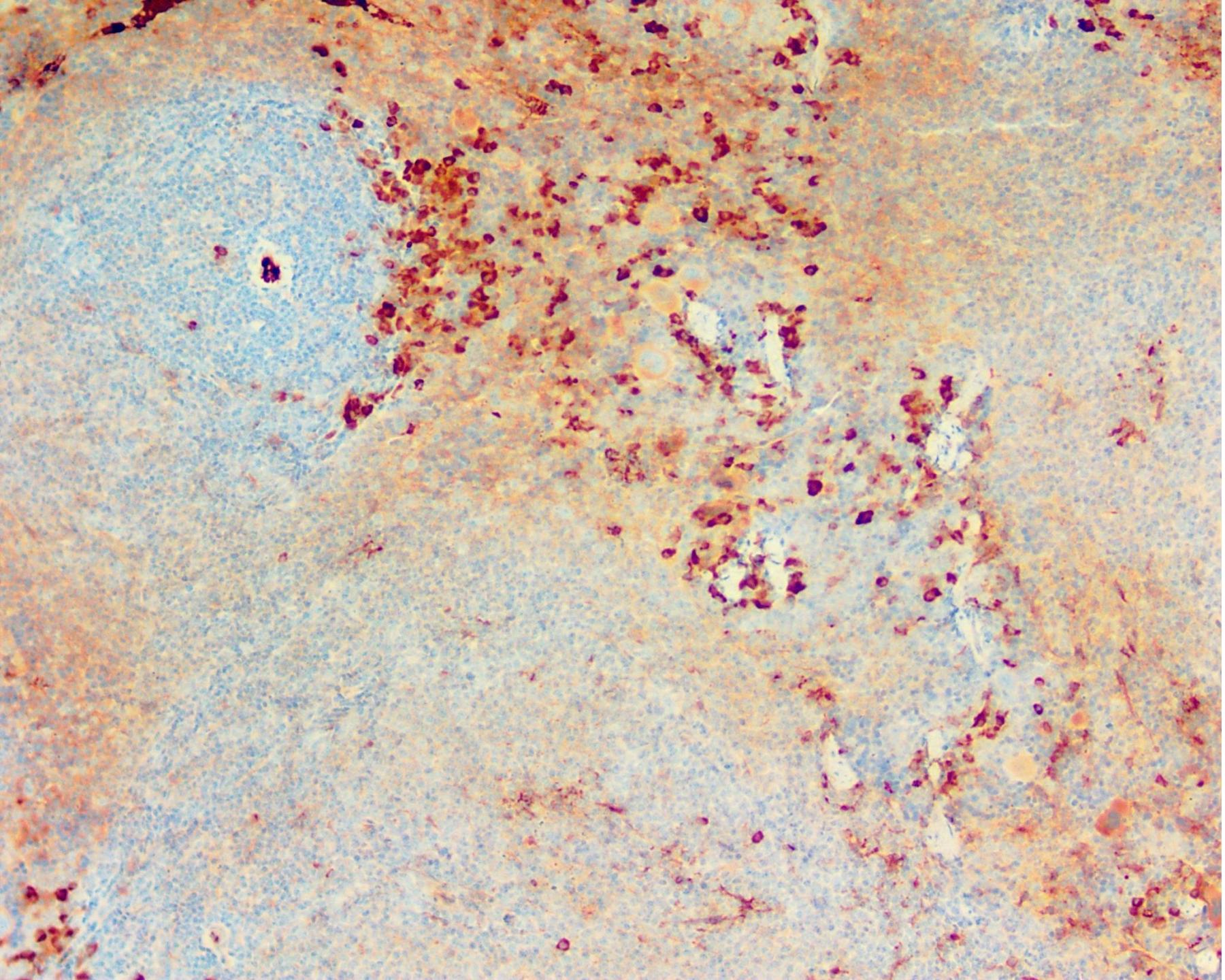
100x



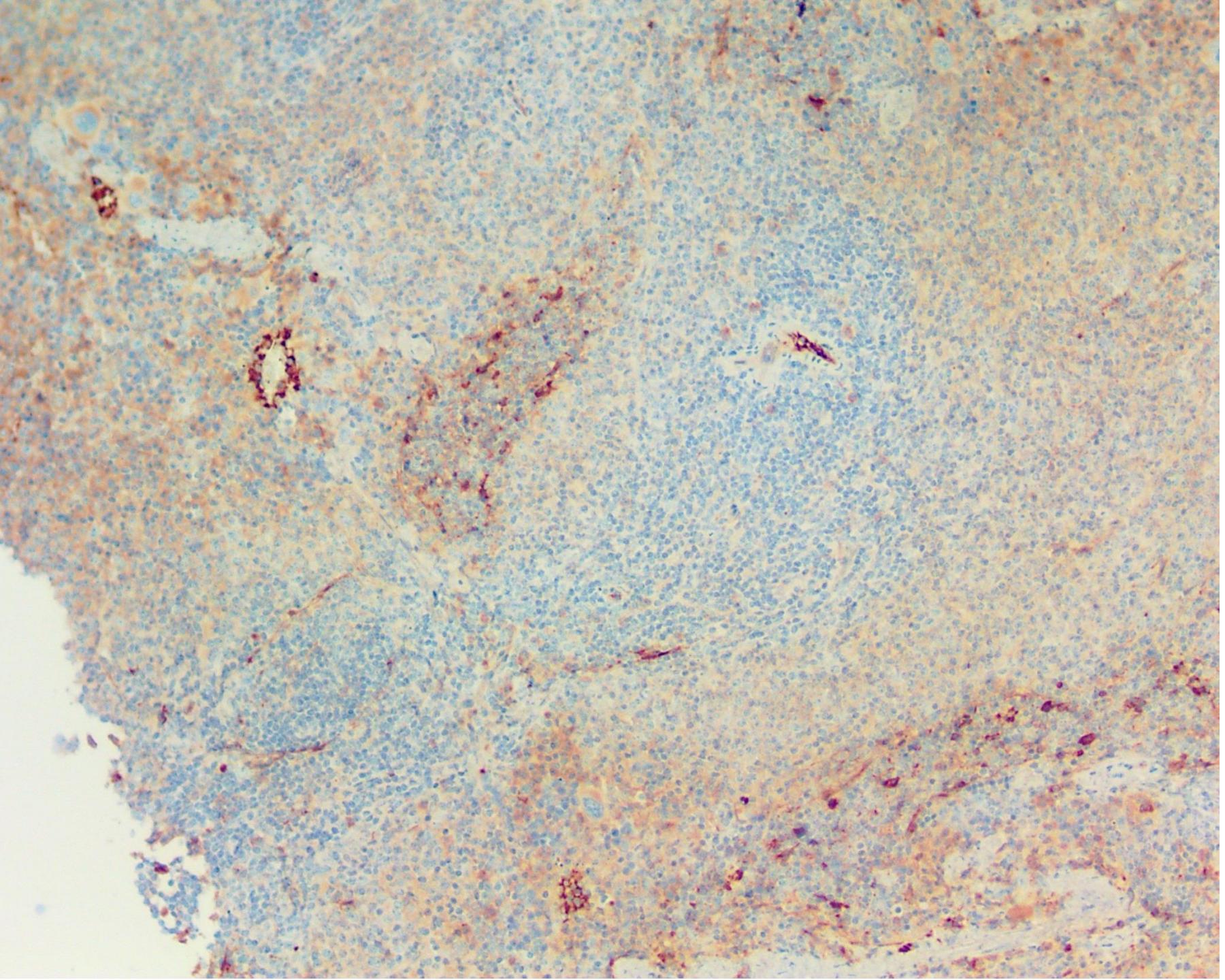
CTB
CD25+
100x



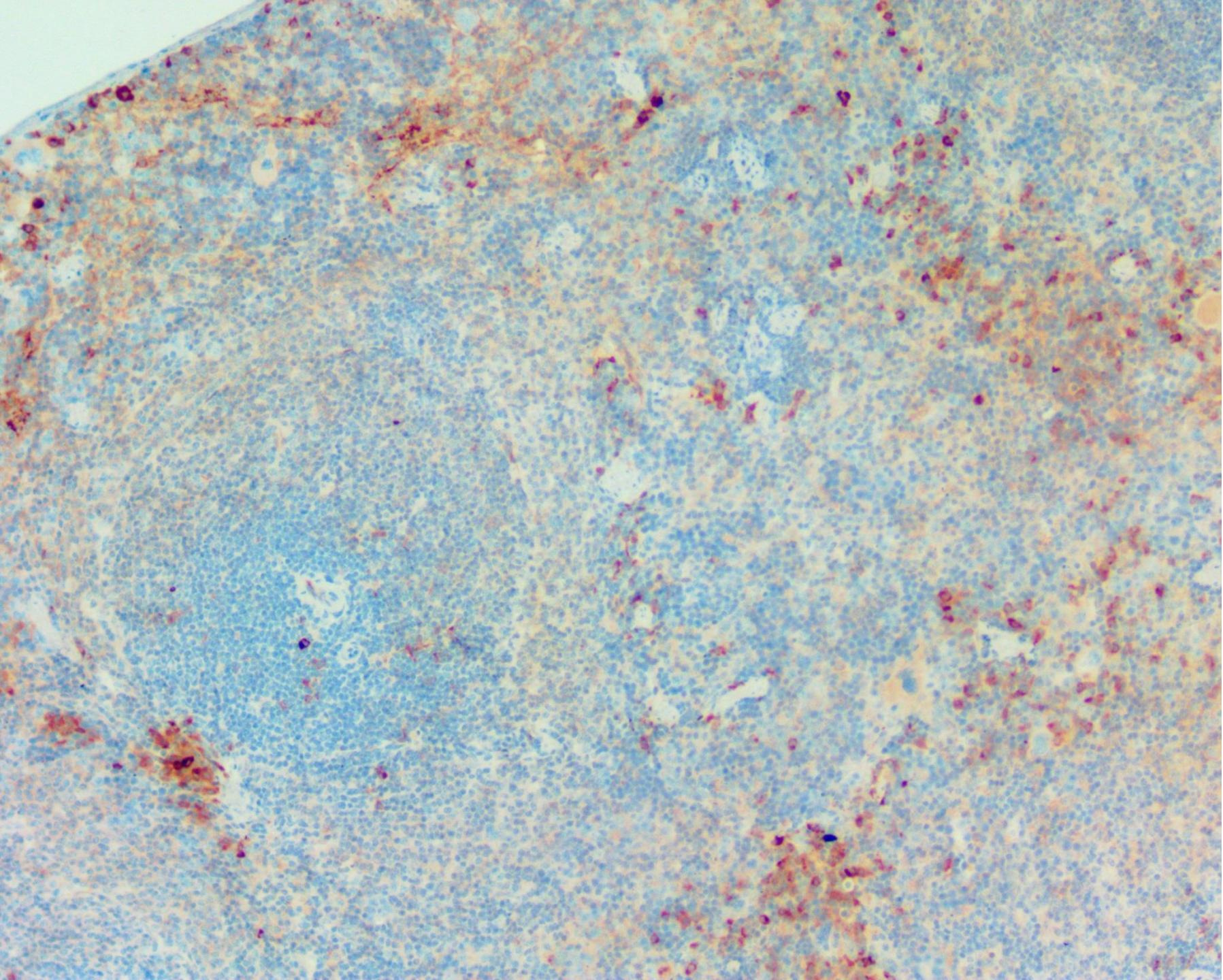
OMV+AH
CD25+
100x



AH
CD25+
100x



OMV
CD25+
100x



Naive
CD25+

This immunohistochemical image shows a tissue section with a dense population of small, blue-stained cells, characteristic of naive CD25+ T cells. These cells are scattered throughout the field, with some appearing in small clusters. Interspersed among them are larger, more intensely stained red and brown cells, likely representing other immune cell types or cellular debris. The overall pattern suggests a peripheral lymphoid tissue environment.

100x