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The timing and mechanisms of sulfur release by Icelandic flood lava eruptions. Holuhraun 2014–15 CE and Laki 1783–84 CE a case study

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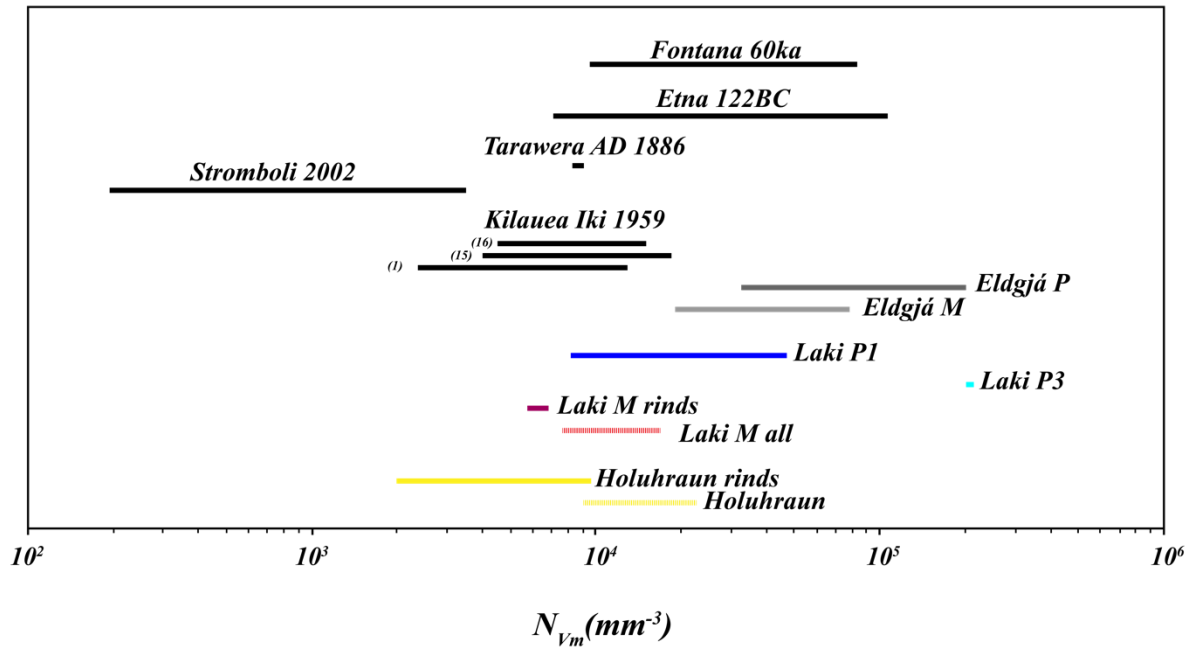
Supplementary material

Appendix A: Bubble spreadsheets (available on request due to file sizes)

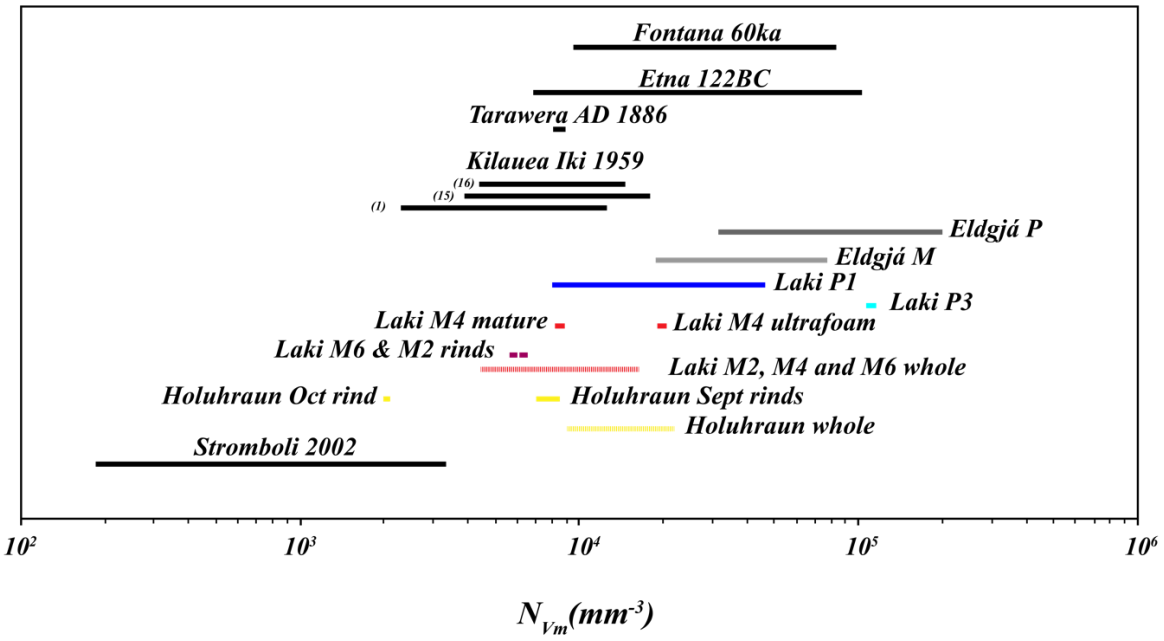
Appendix B: Geochemical data (see attached spreadsheets)

Appendix C: Bubble supplementary material

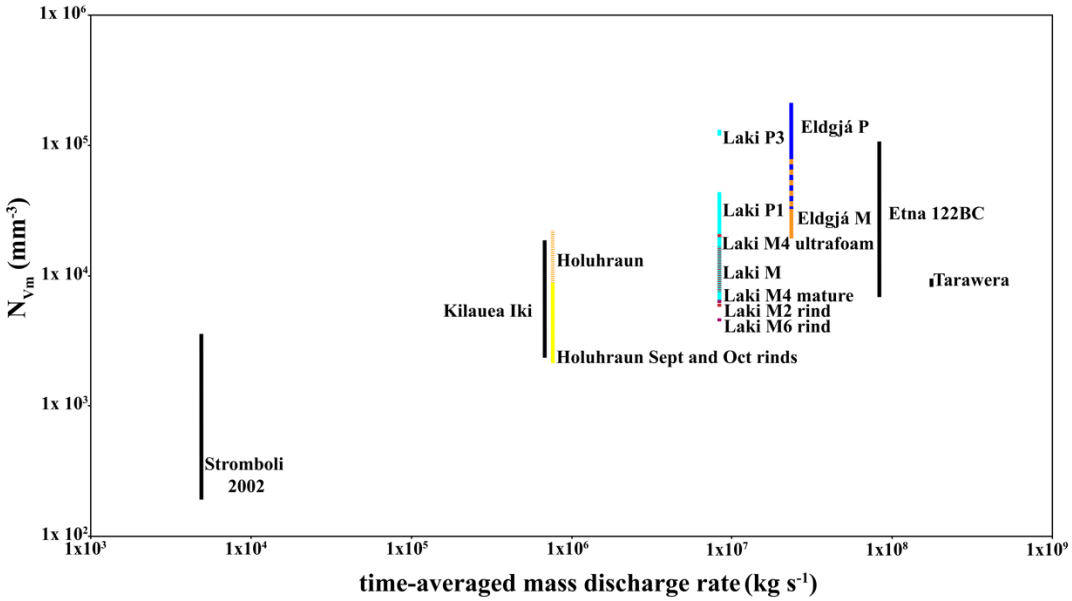
Appendix C: MER and vesicularity



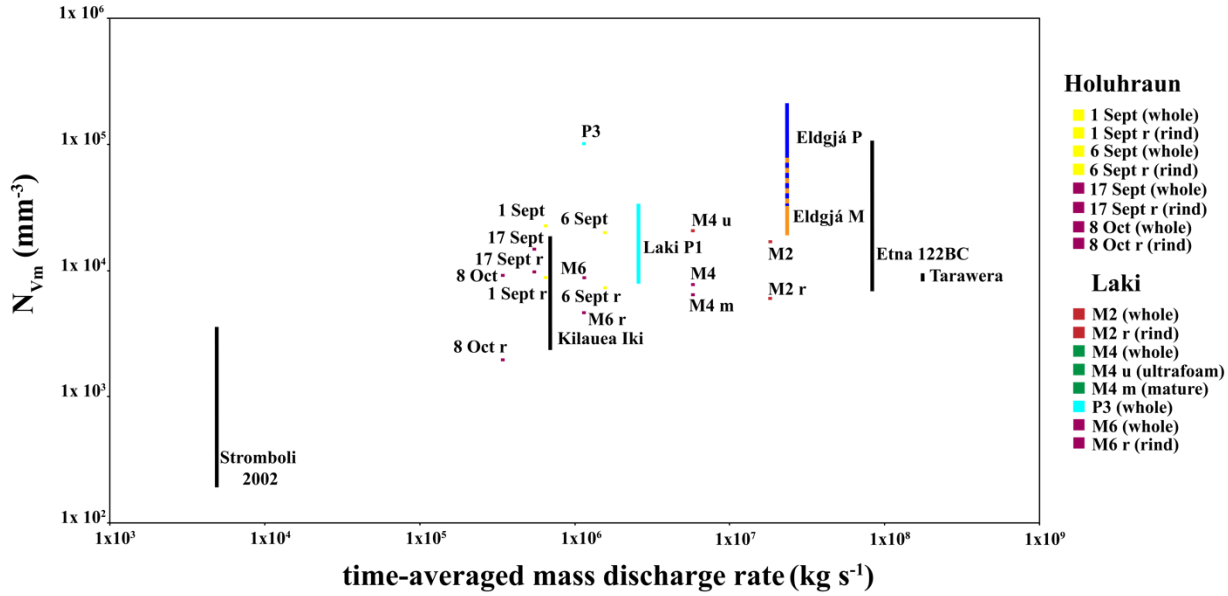
Appendix C1: N_V^m comparison plots for basaltic fissure and summit eruptions of varying intensities, spaced arbitrarily to allow for a good visual comparison. For the Laki and Holuhraun data sets a distinction between the rinds and whole clasts have been made.



Appendix C2: N_V^m comparison plots for basaltic fissure and summit eruptions of varying intensities, spaced arbitrarily to allow for a good visual comparison. For the Holuhraun data sets a distinction between the rinds and whole clasts is made. For Laki, magmatic clasts and phreatomagmatic clasts are isolated, alongside distinctions made between individual magmatic rinds and the Laki whole clasts, as well as isolating interior textures in one Laki clast.



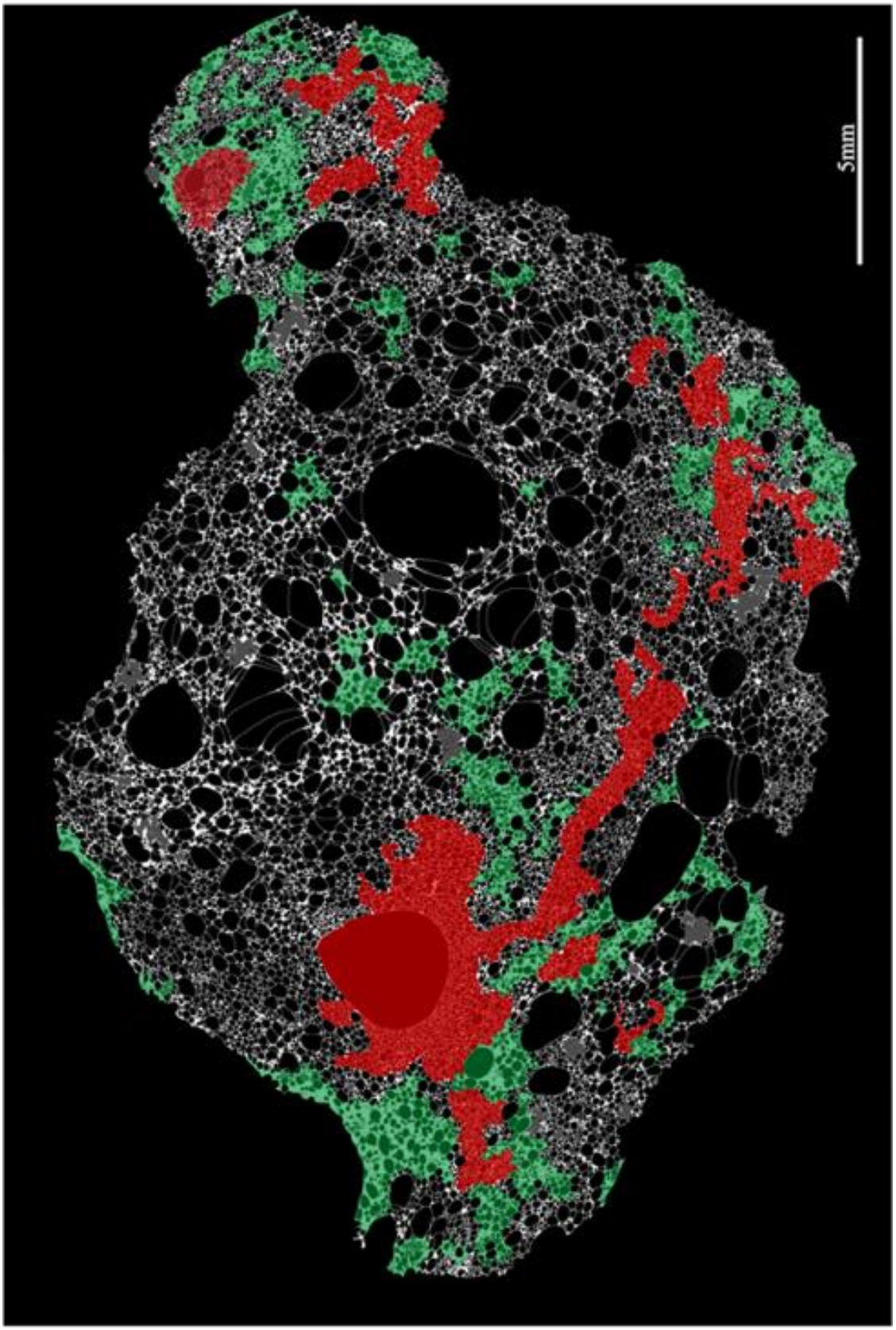
Appendix C3: MER and N_V^m comparison plot for the Holuhraun and Laki data sets.



Appendix C4: MER and N_V^m comparison plot for basaltic eruptions across a scale of intensities from weakly explosive to Plinian intensities. The Holuhraun and Laki sample data sets from this study recalculated for point source areas and changes in MER, these are calculated for Laki by Thordarson et al., 1996. For the Holuhraun data sets a distinction between the individual rinds and whole clasts is made. For Laki, Magmatic clasts and phreatomagmatic clasts are isolated, alongside distinctions made between magmatic rinds and the Laki whole clasts, as well as isolating interior textures in one Laki clast.

Appendix C5: Transitional texture

M4 (3F. 1): additional texture identification? Transitional (isolated in purple, 3F. 2), a mixture of ultra-vesicular foam and mature texture (3F. 1).



C5. 1: M4 clast with isolated and analysed textures highlighted. Red: ultra-vesicular foam. Green: Very mature texture

C5. 2: Isolated additional texture, not analysed separately. Possible mixture of ultra-vesicular foam and mature textures.

Appendix C6: Additional thin section images (qualitative textural data).

Appendix C6. 1: Thin sections of Holuhraun clasts imaged in PPL at 100x magnification.

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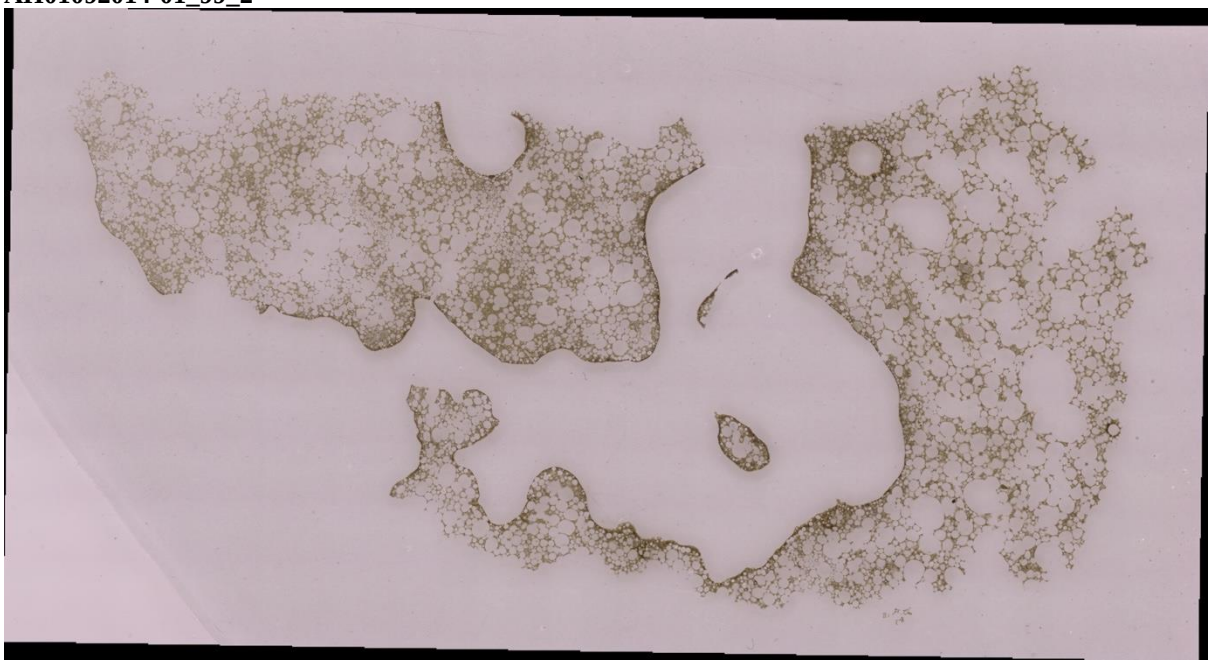
ÁH01092014-01_99_2



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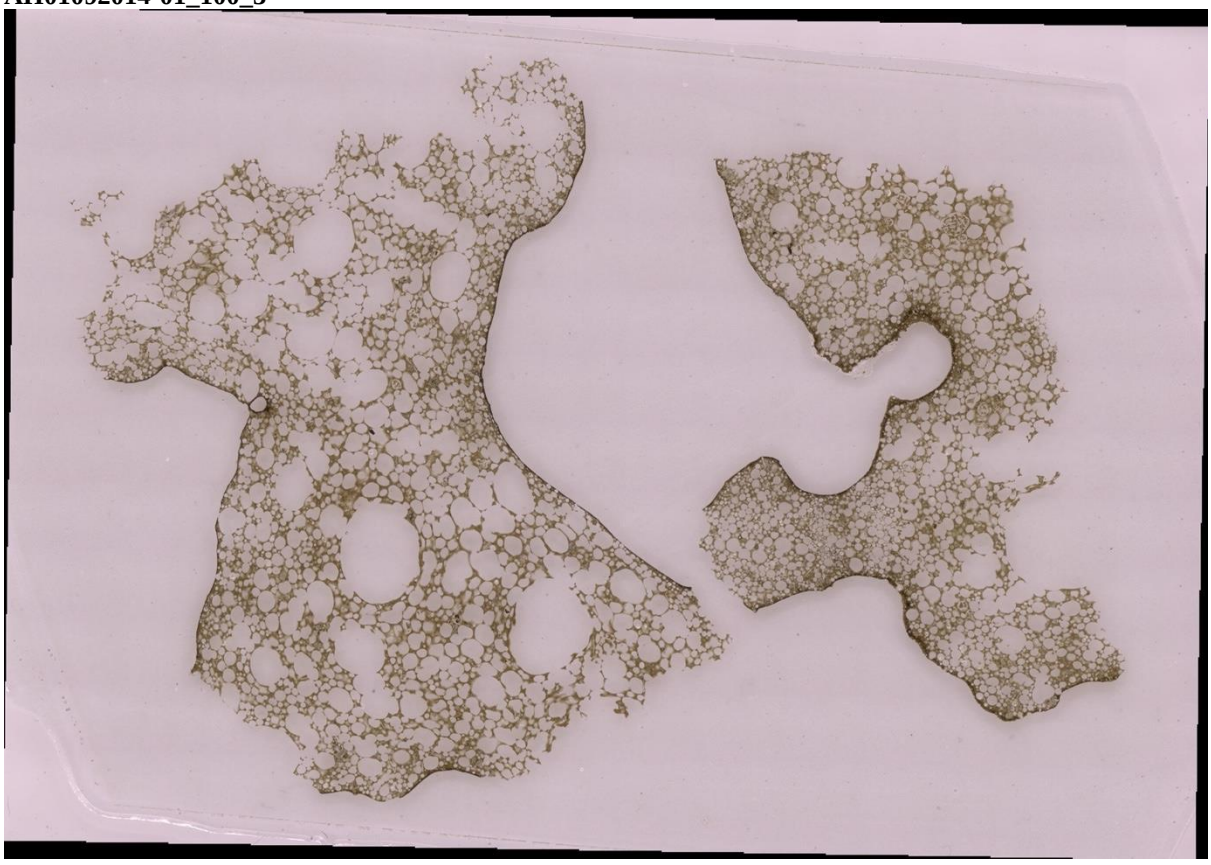

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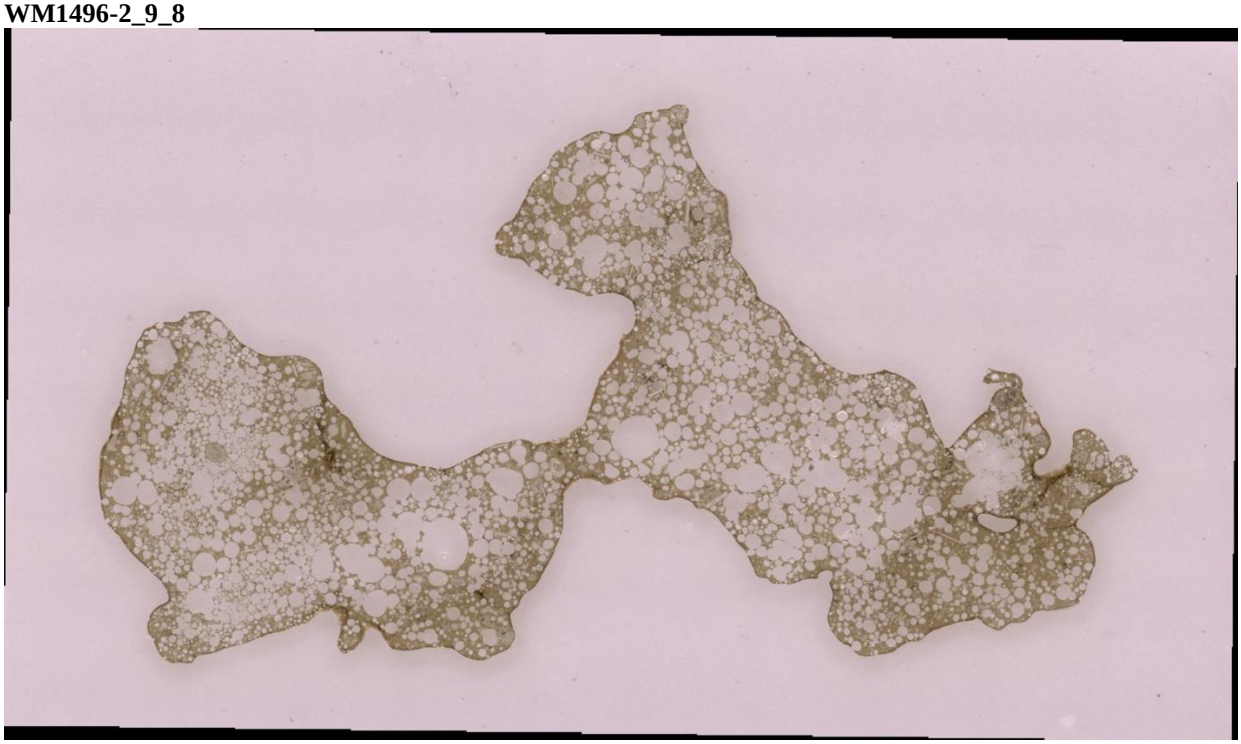

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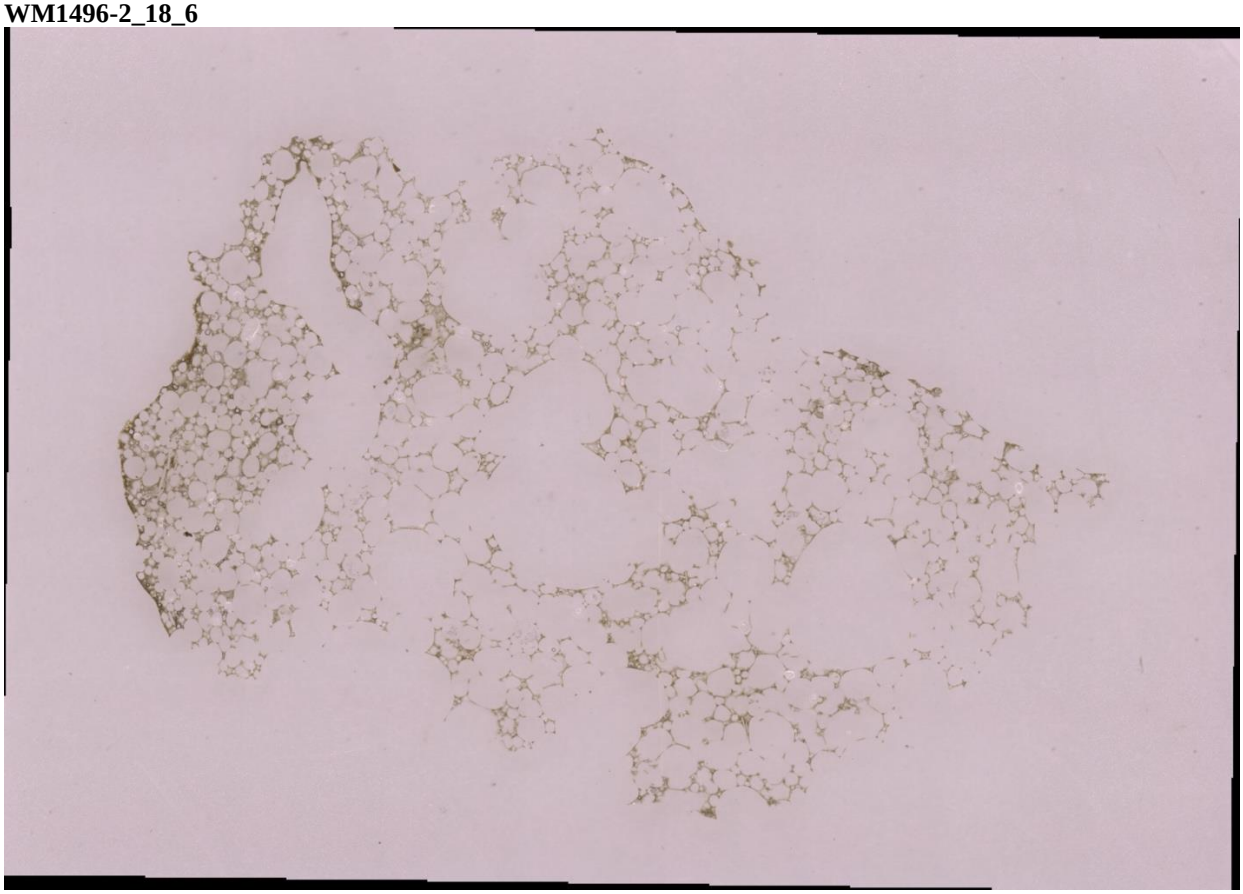

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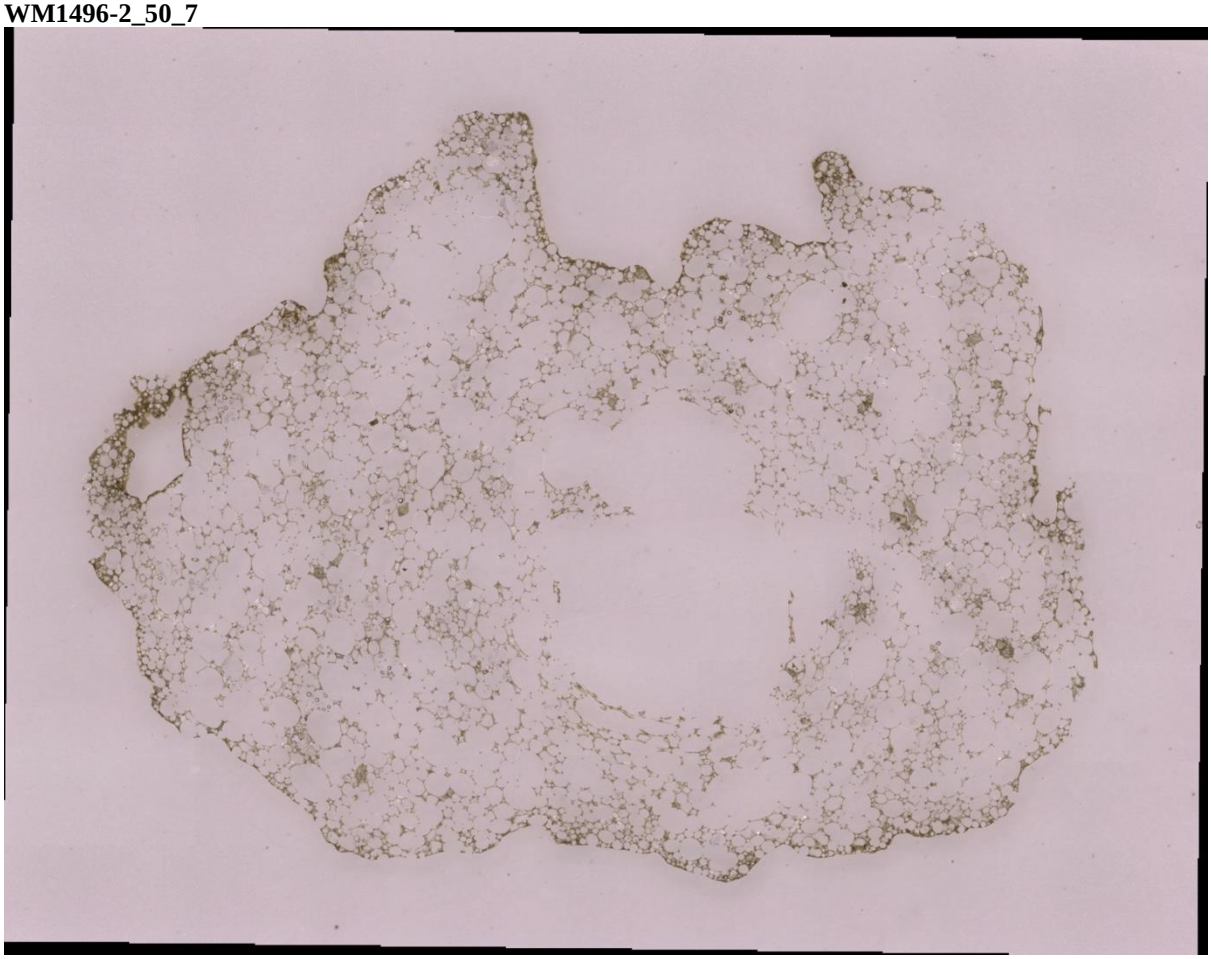

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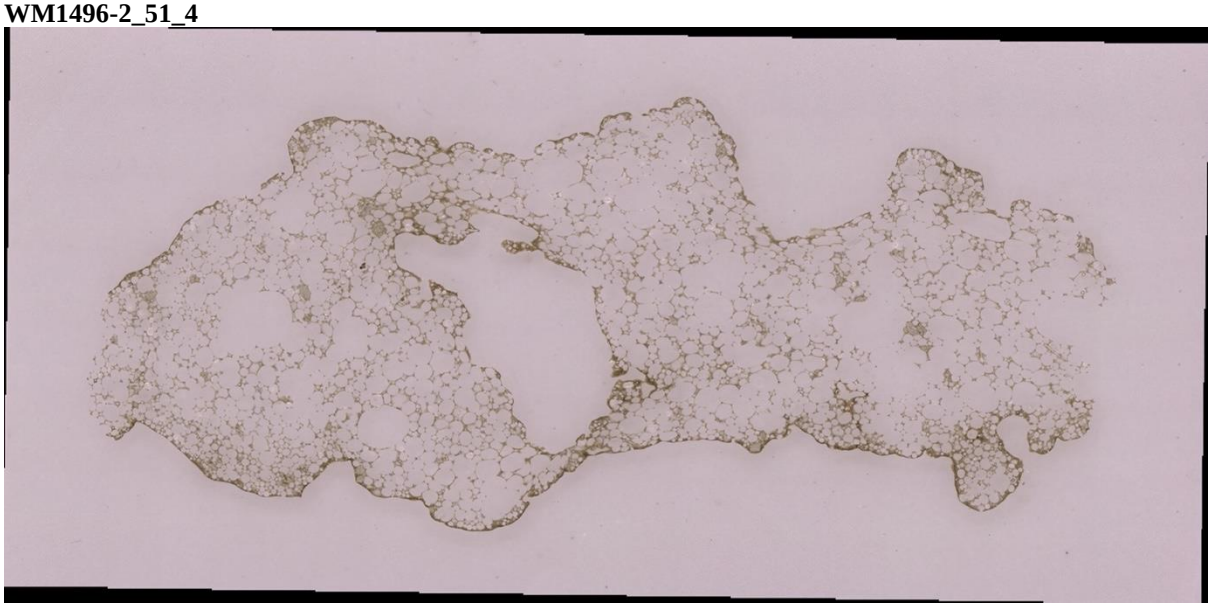

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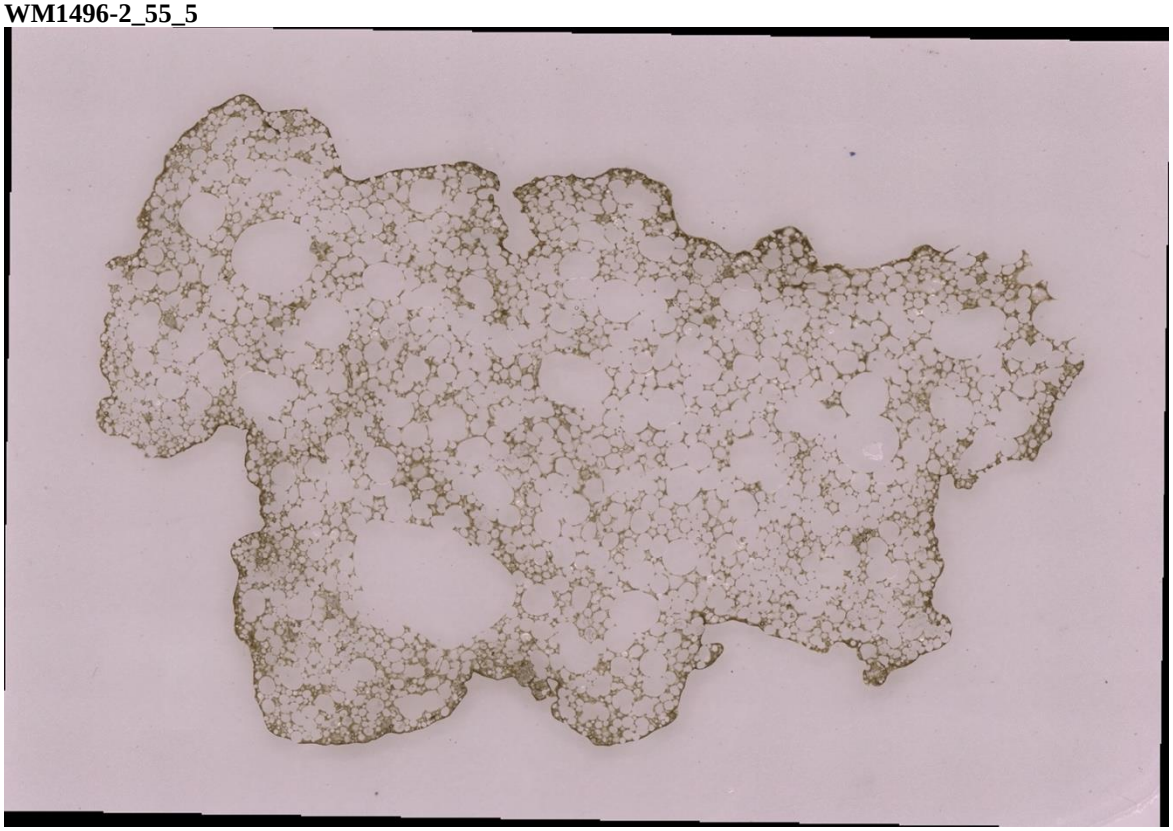

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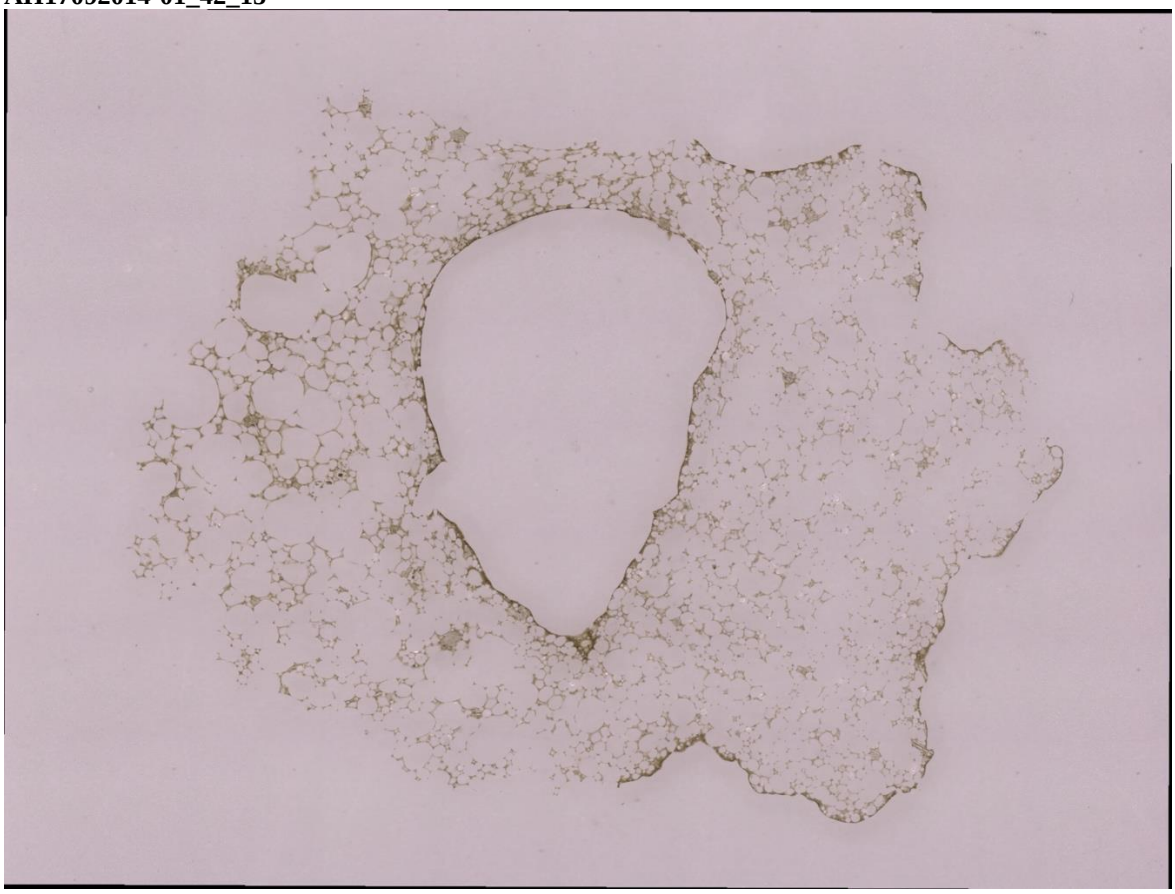

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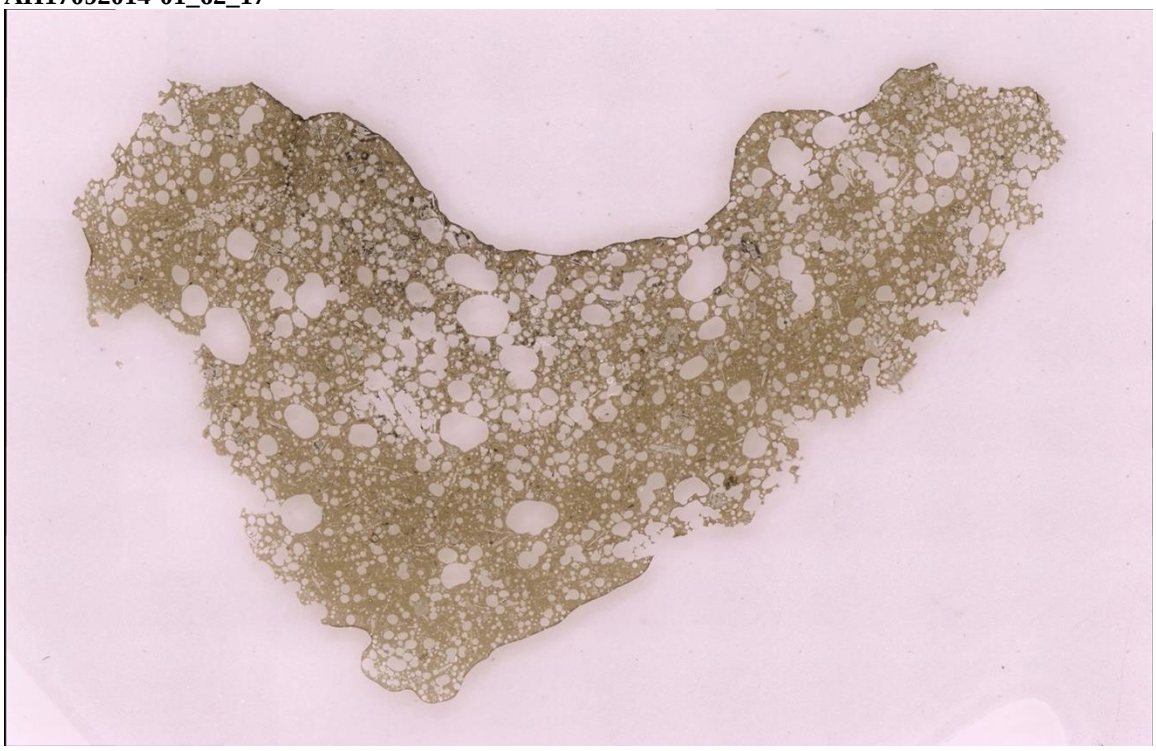

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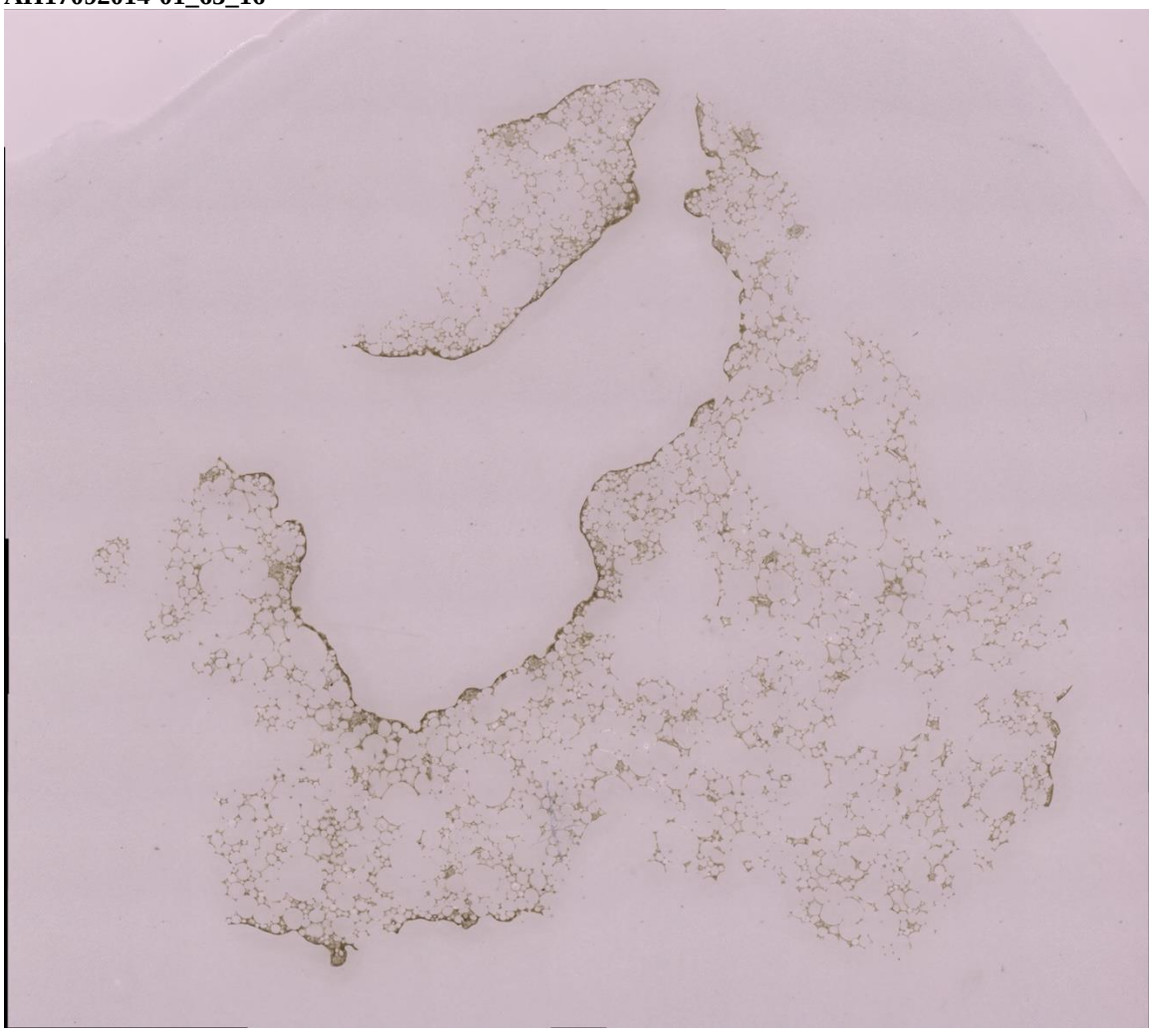

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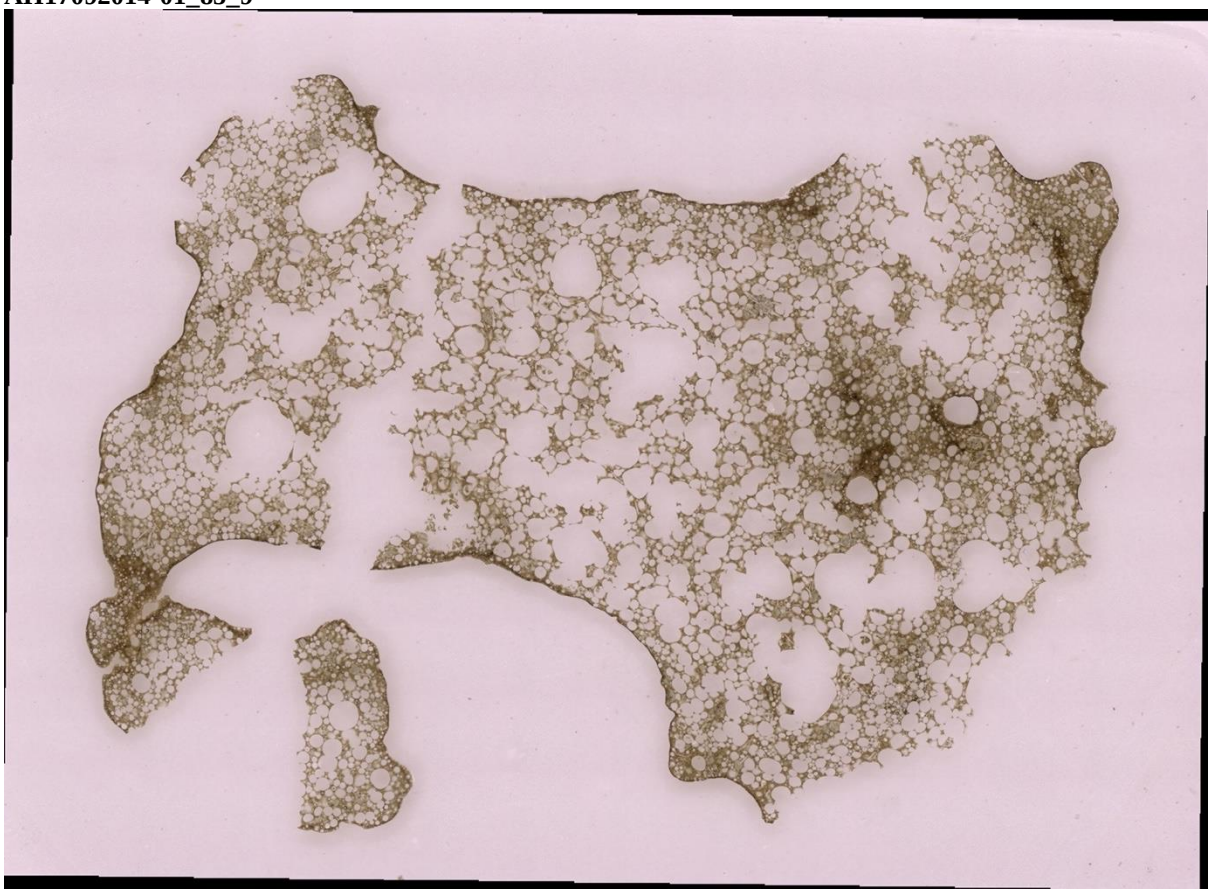

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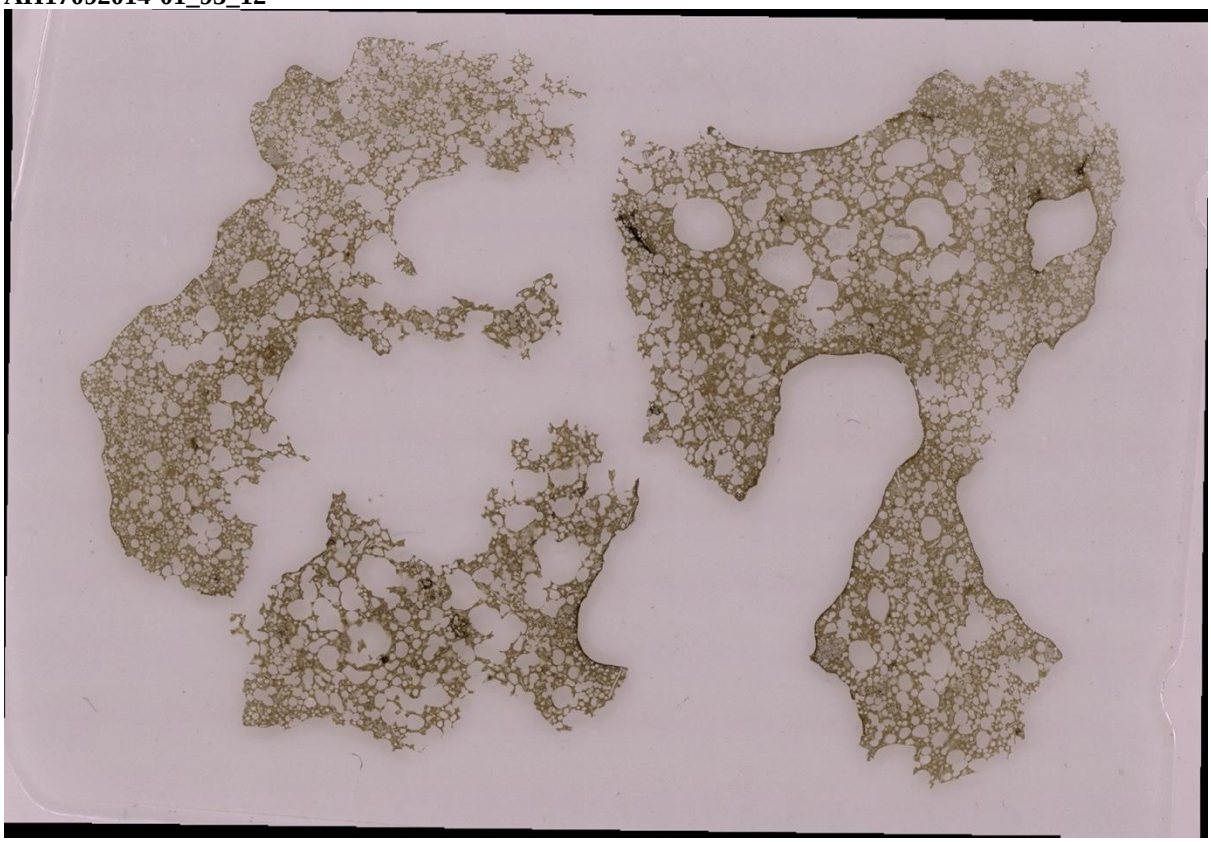

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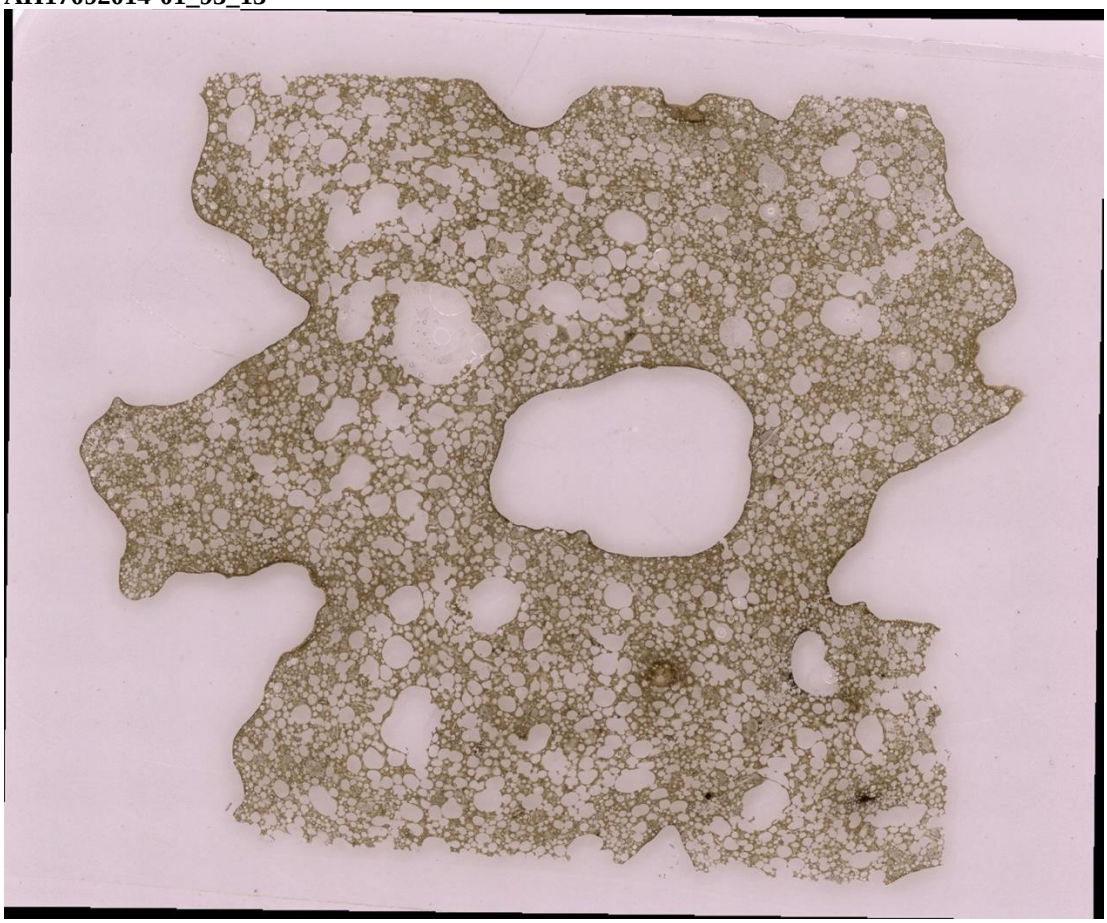

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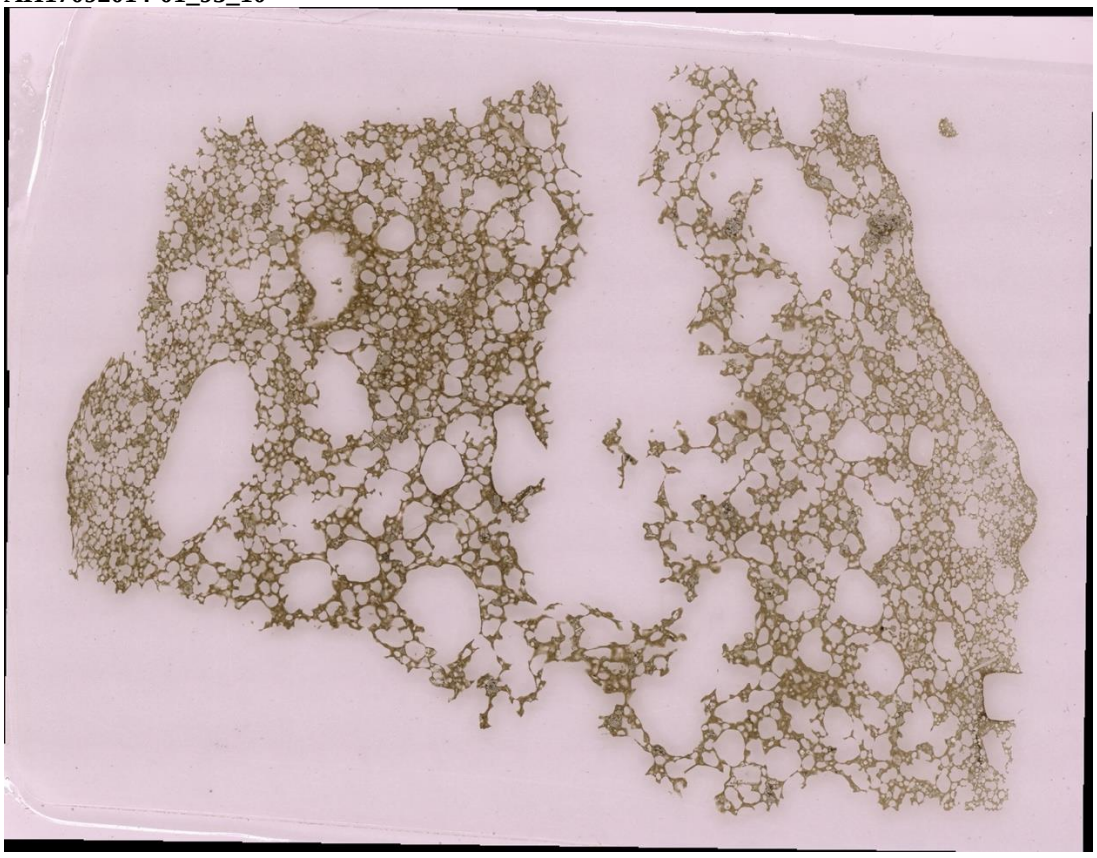

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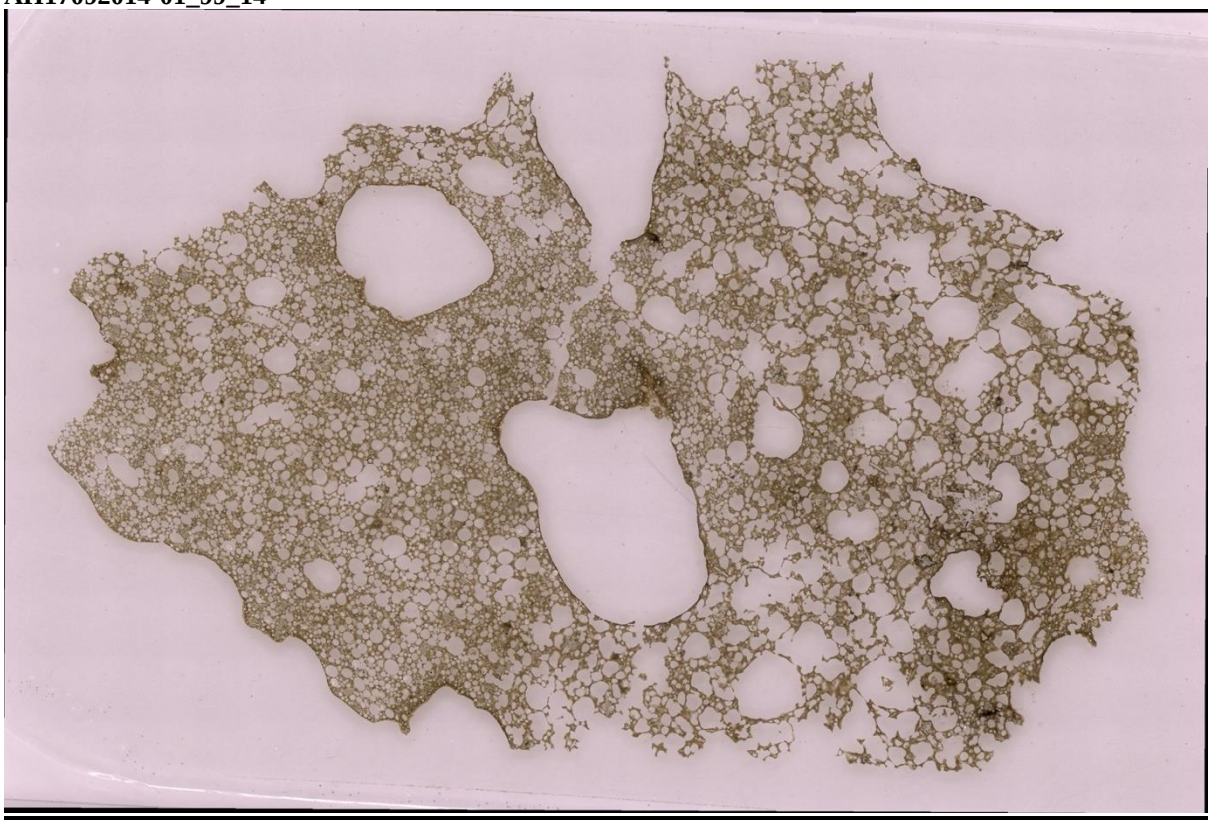

8 October: TT08102014:

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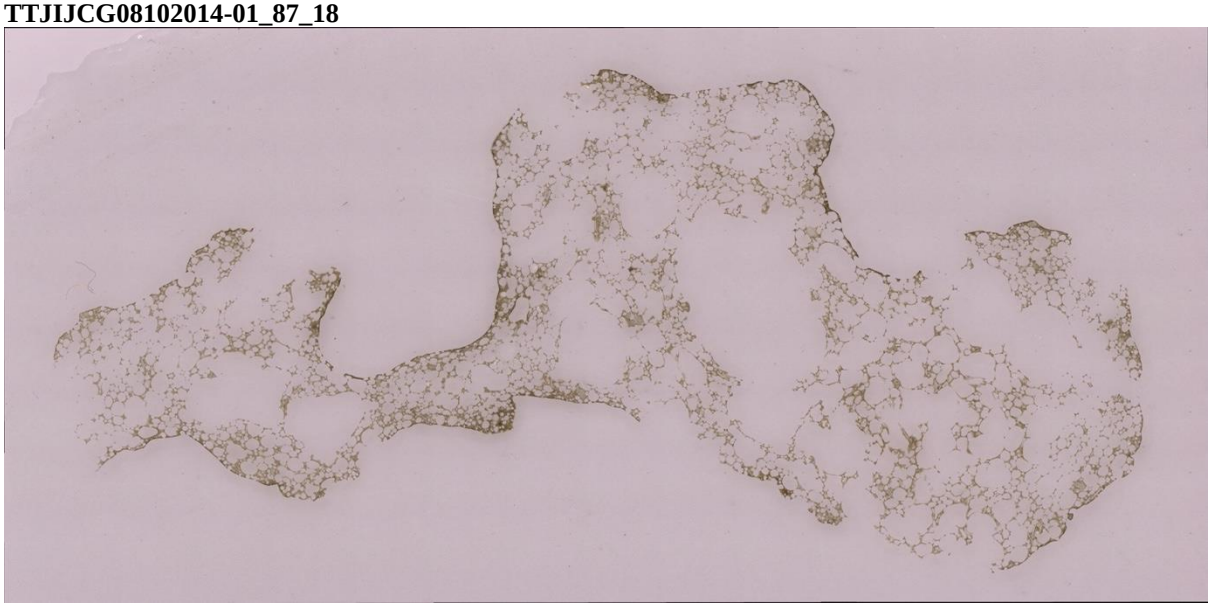

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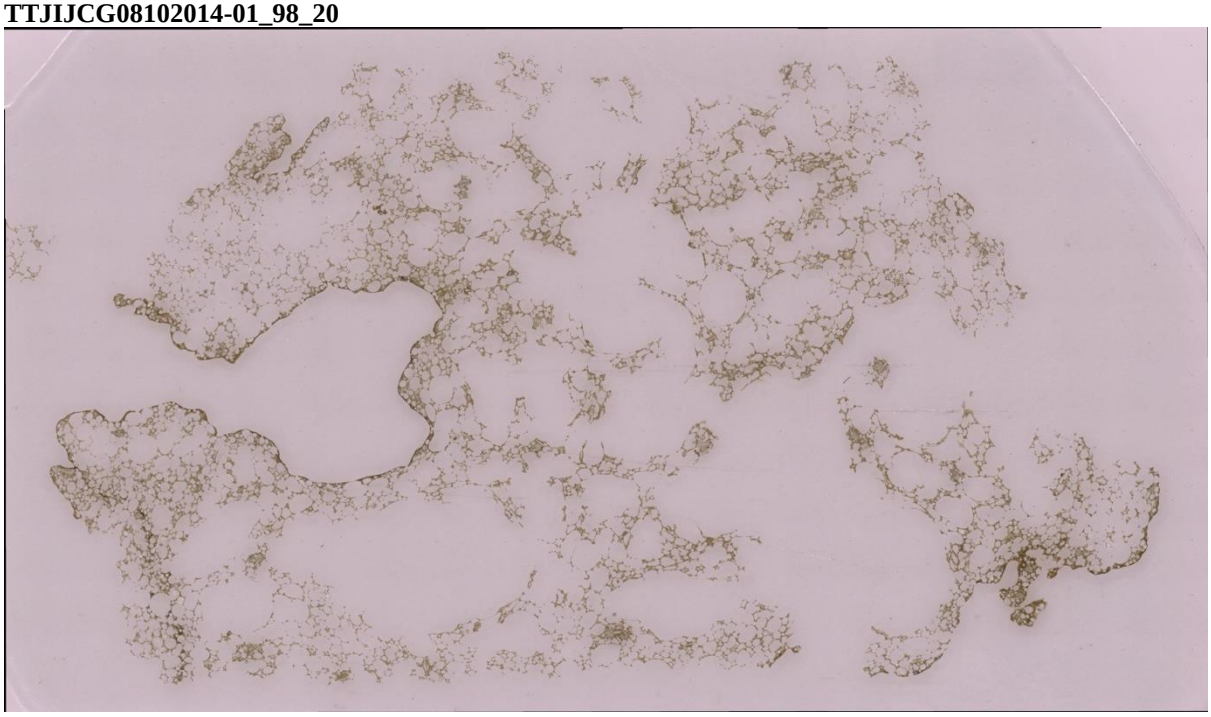
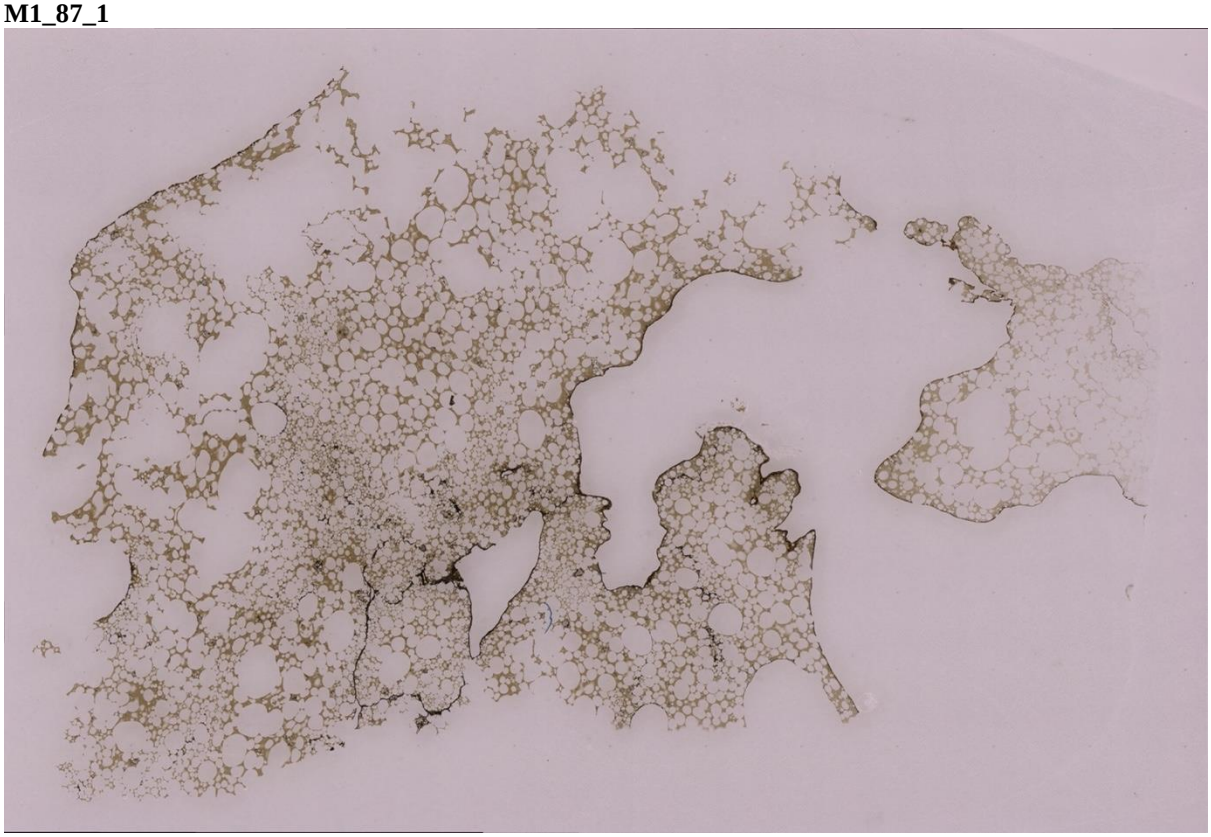


Appendix C6. 2: Thin sections of Laki clasts imaged in PPL at 100x magnification.

M1

M1_87_1



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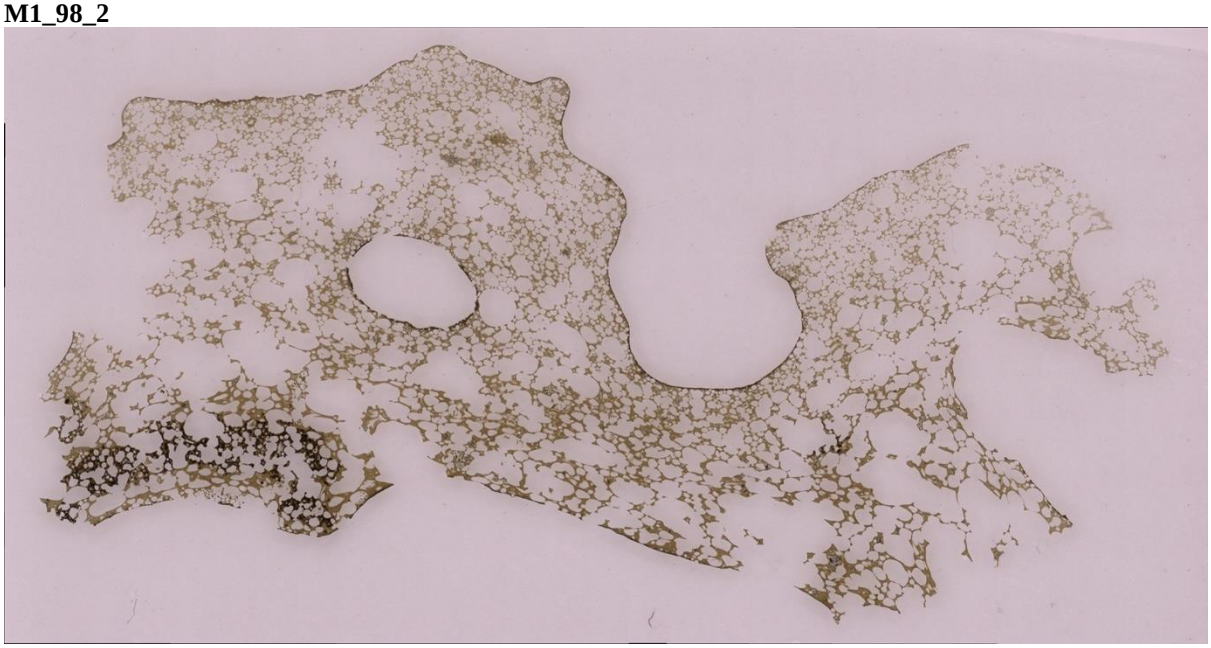
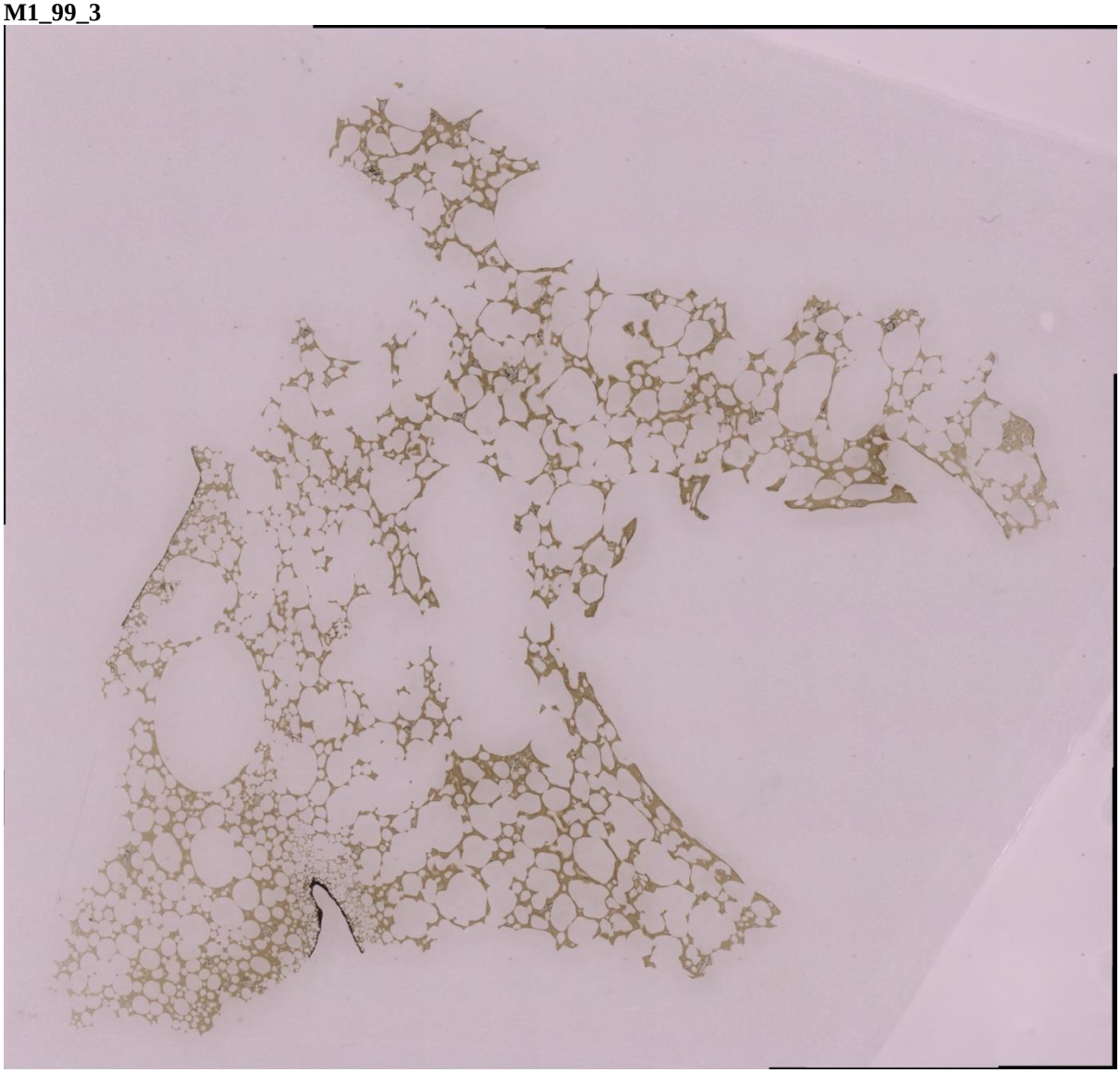
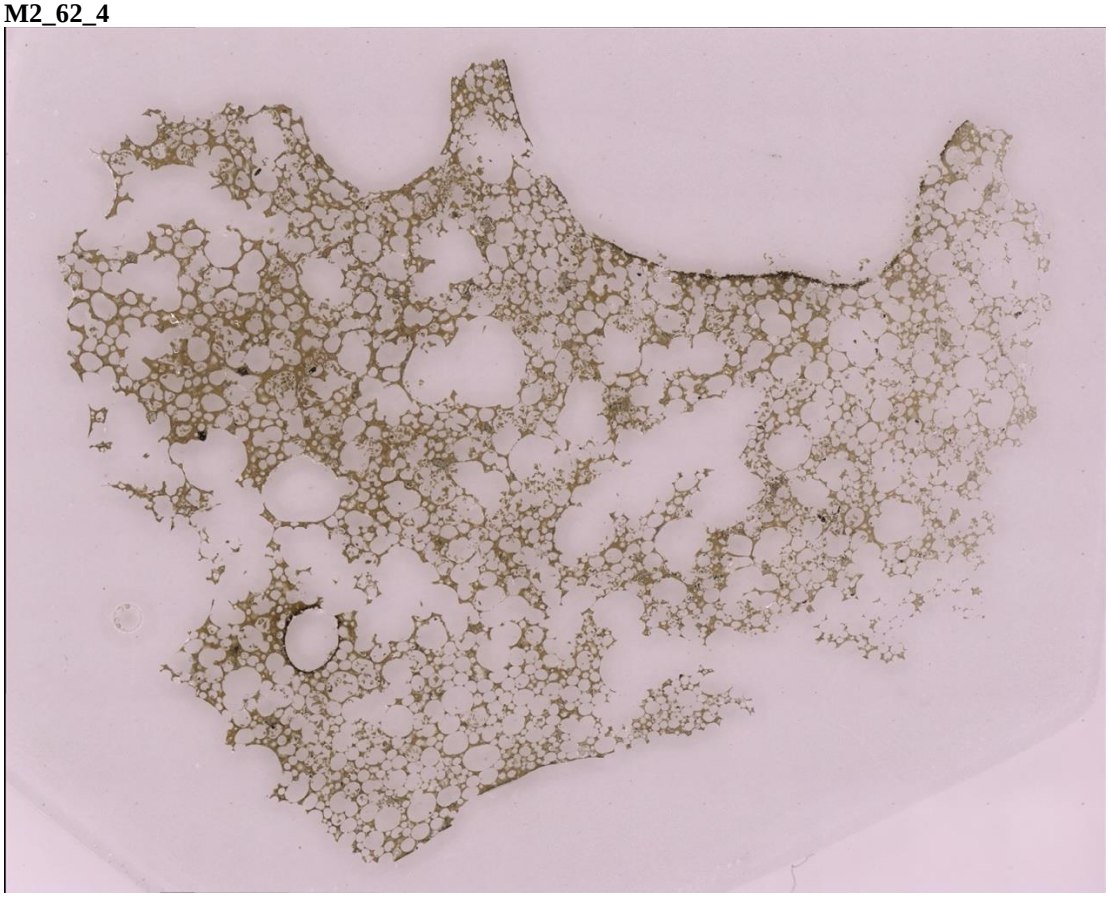


M1_99_3



M2

M2_62_4



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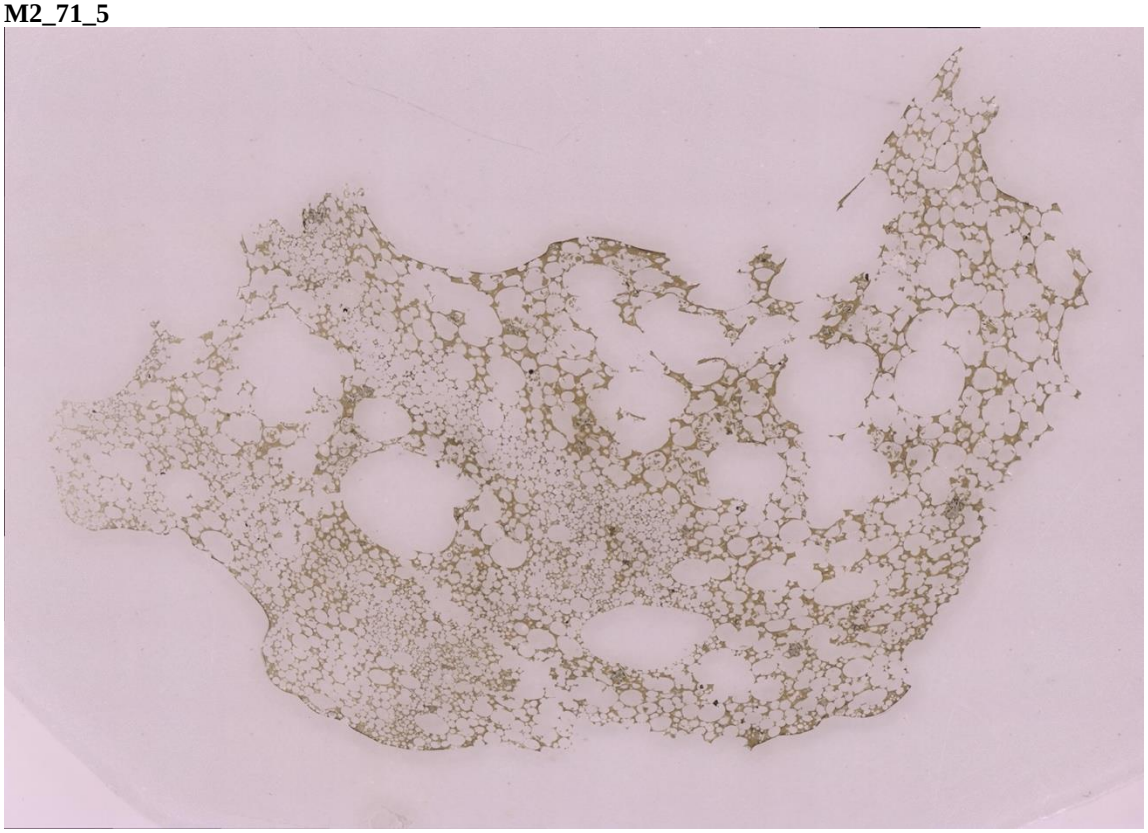
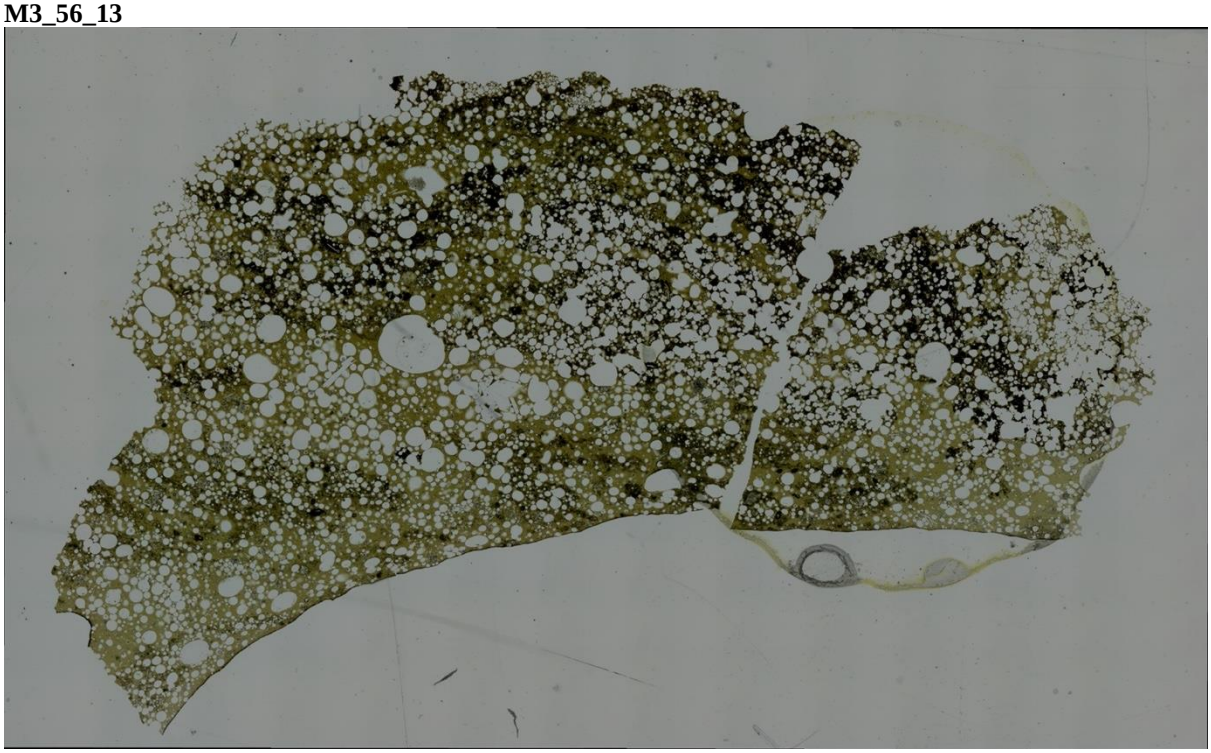


M3

M3_56_13



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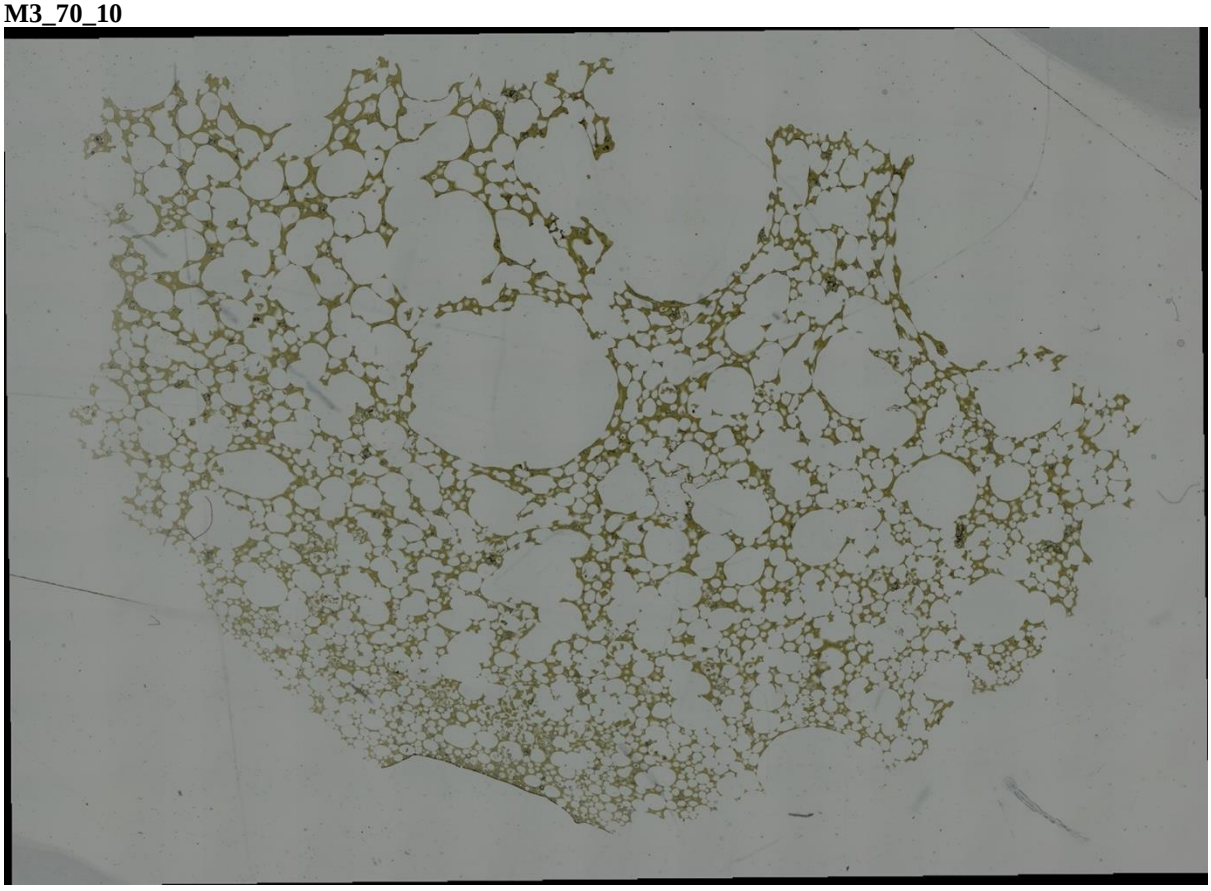

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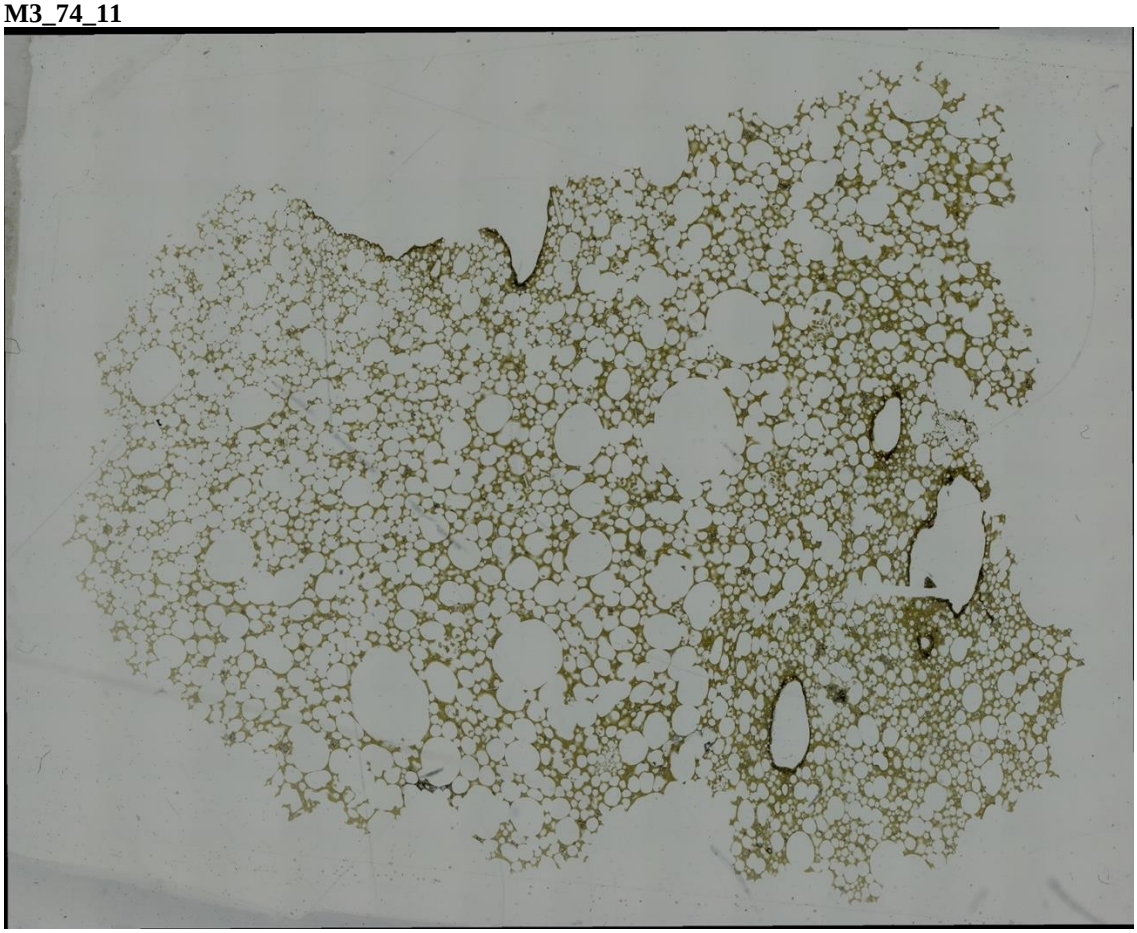

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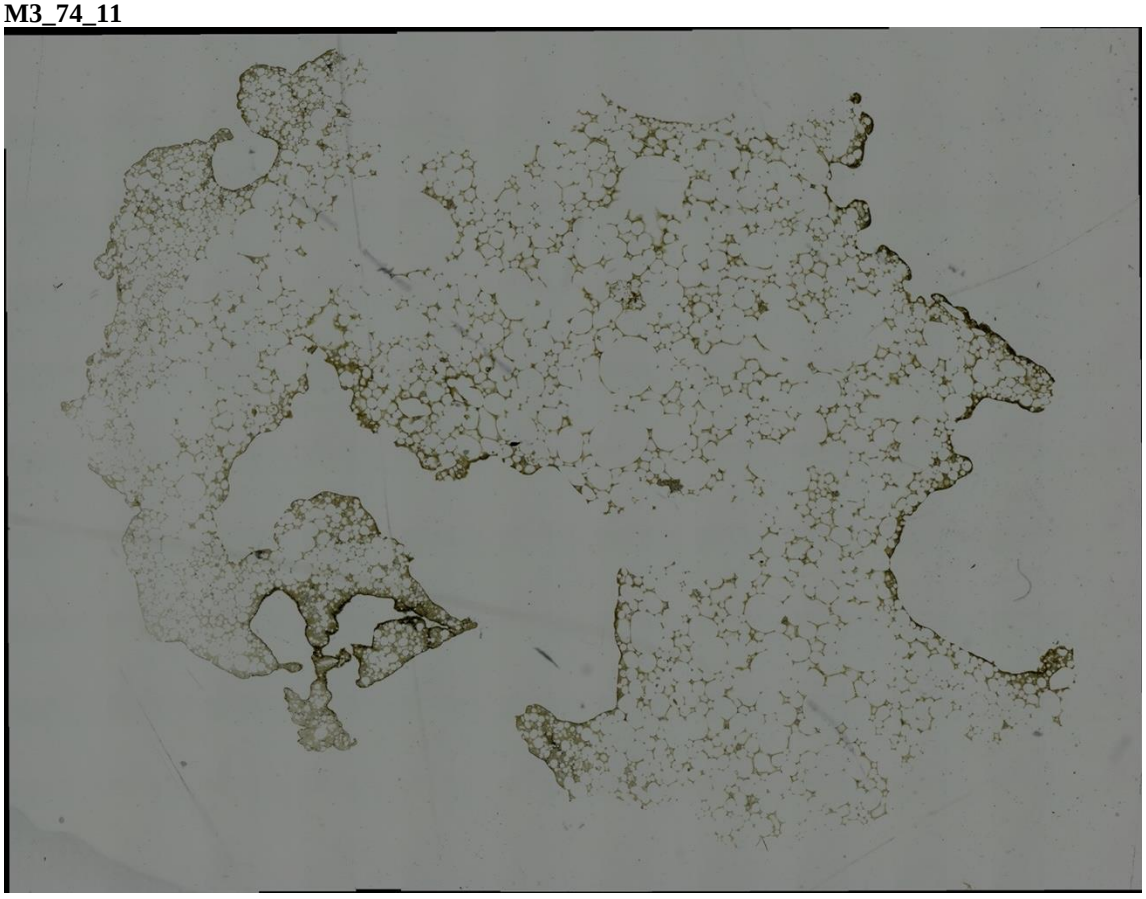

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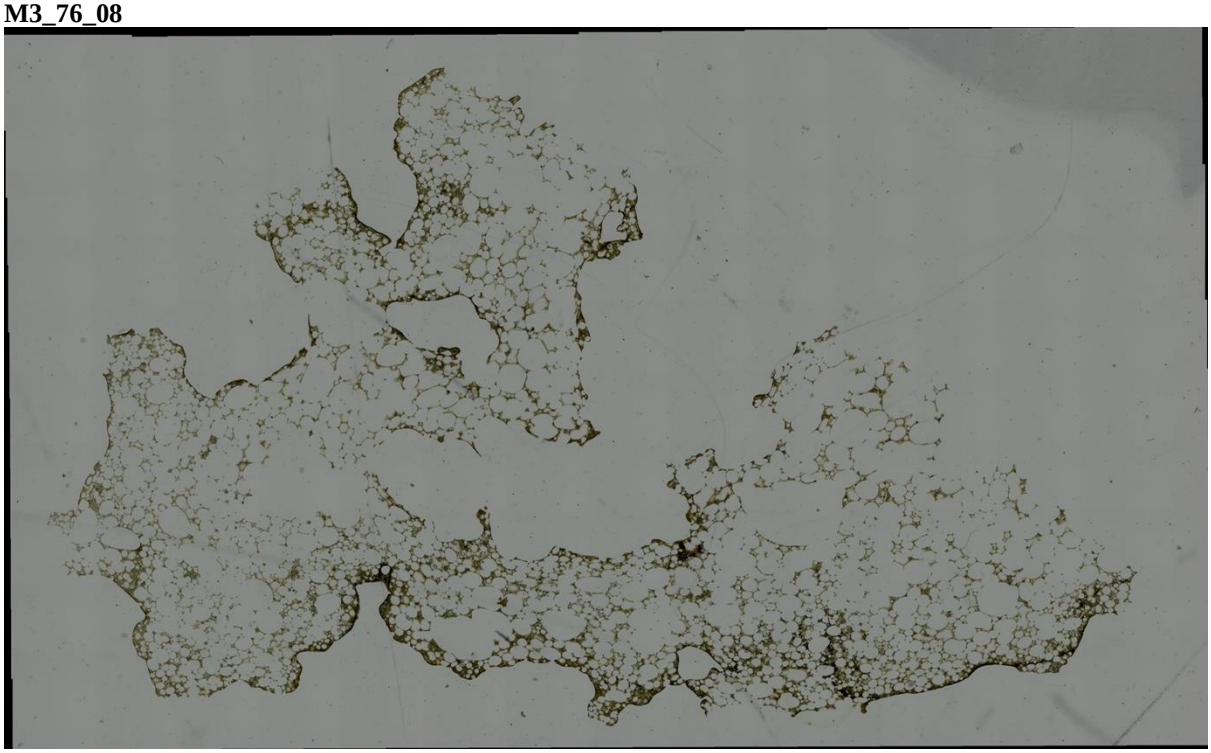

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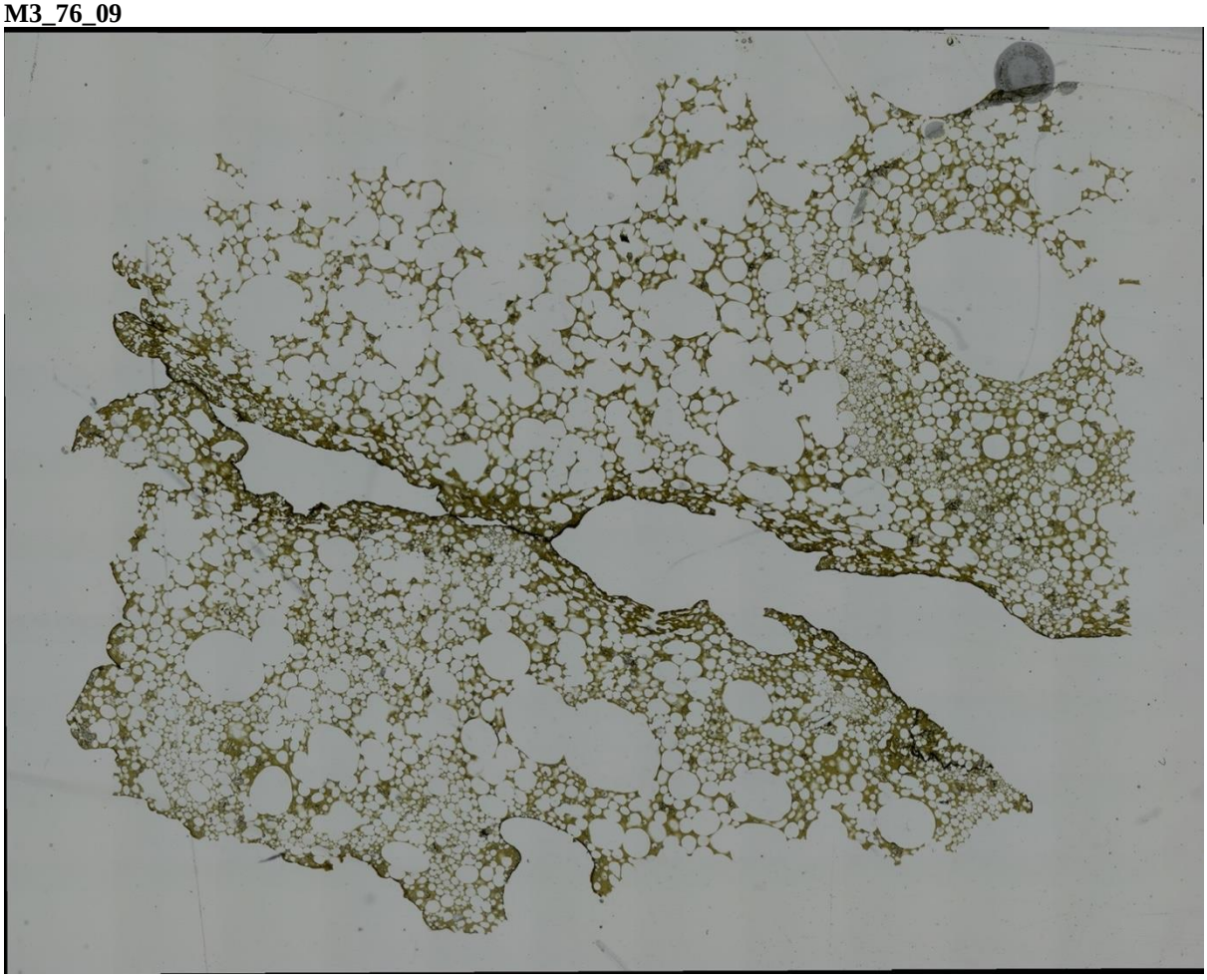
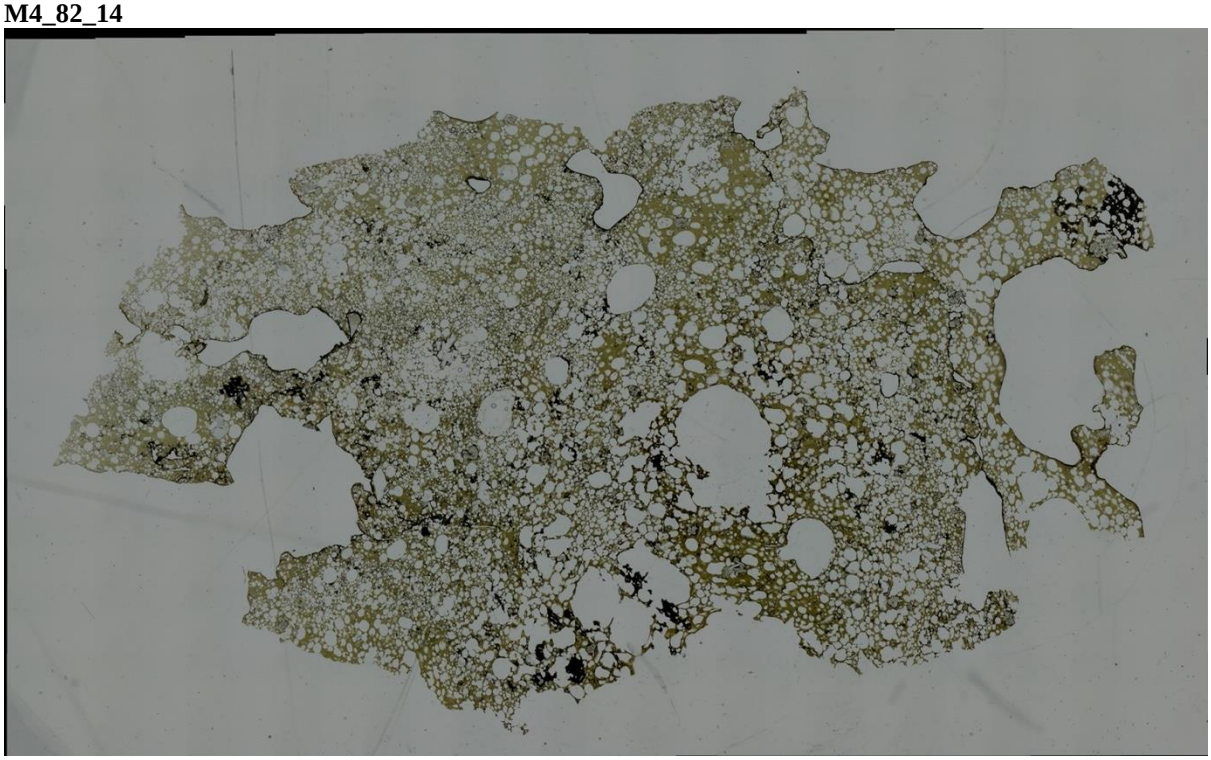


M4

M4_82_14



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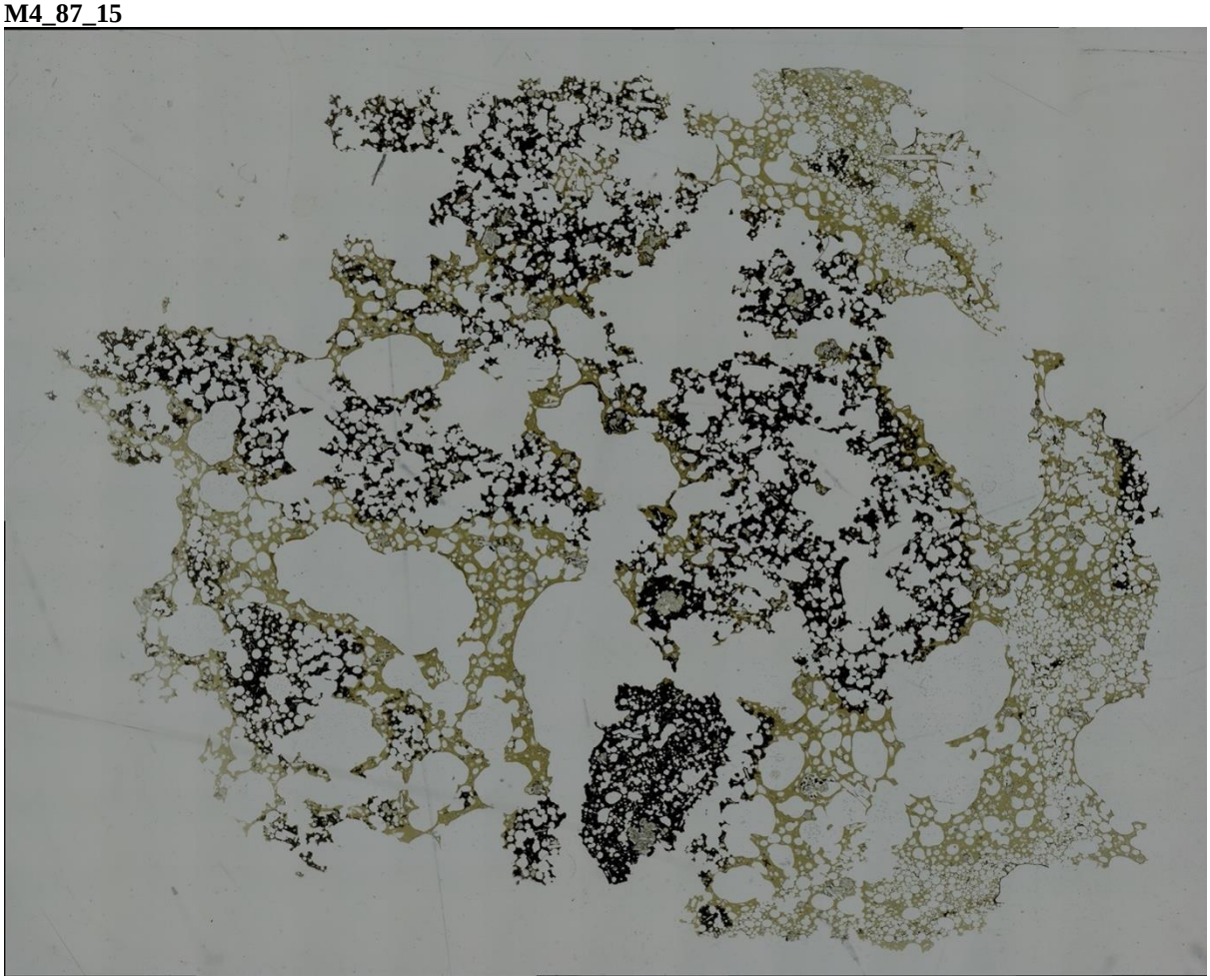
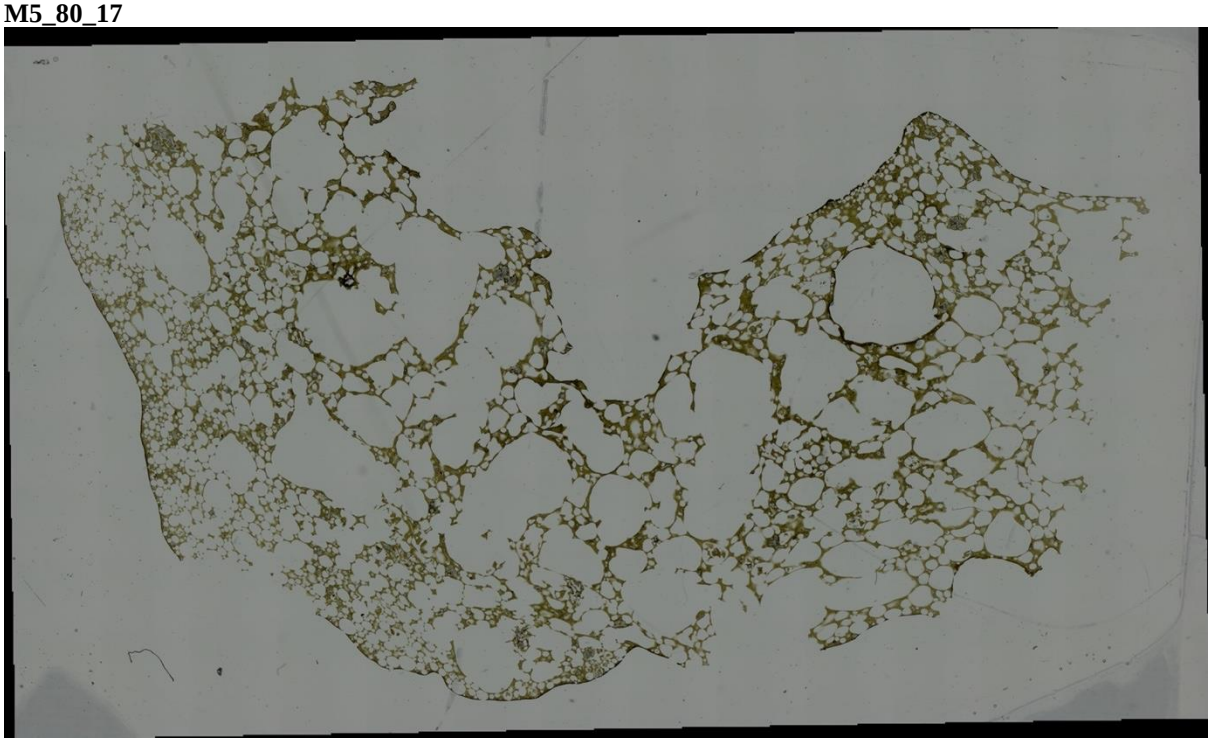


M4_97_16

M5

M5_80_17



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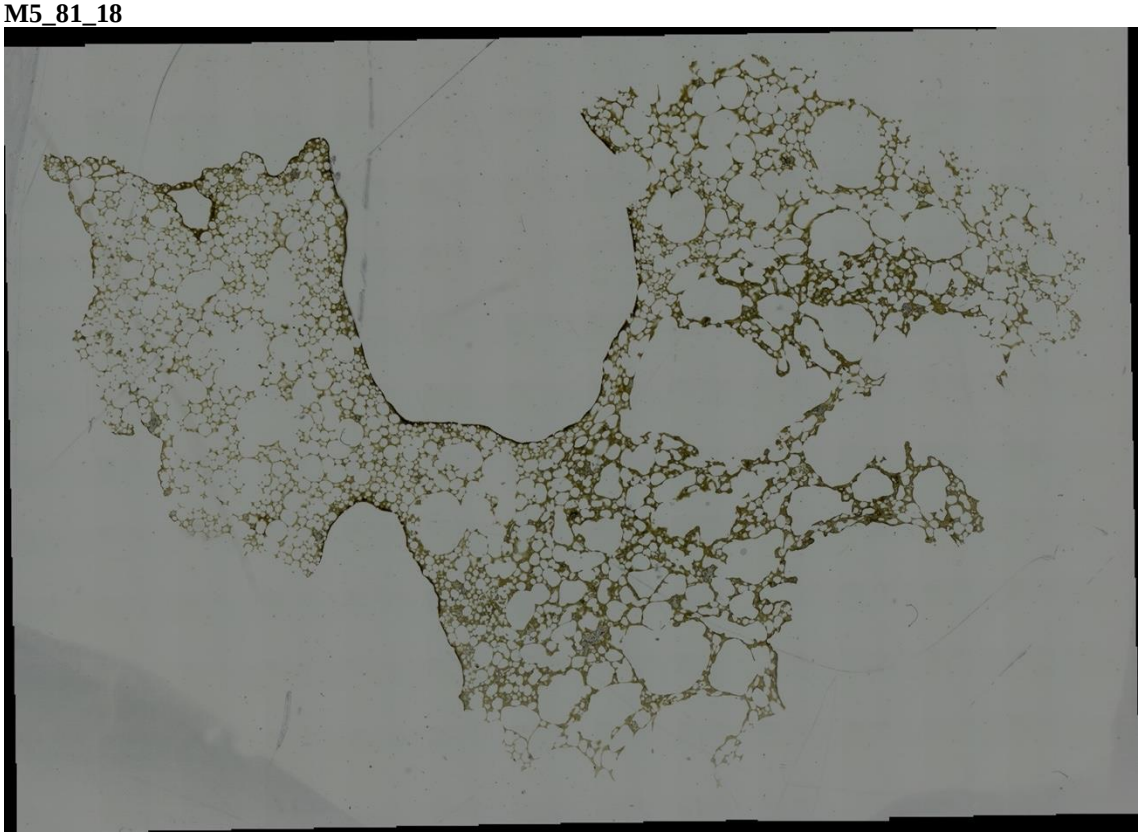

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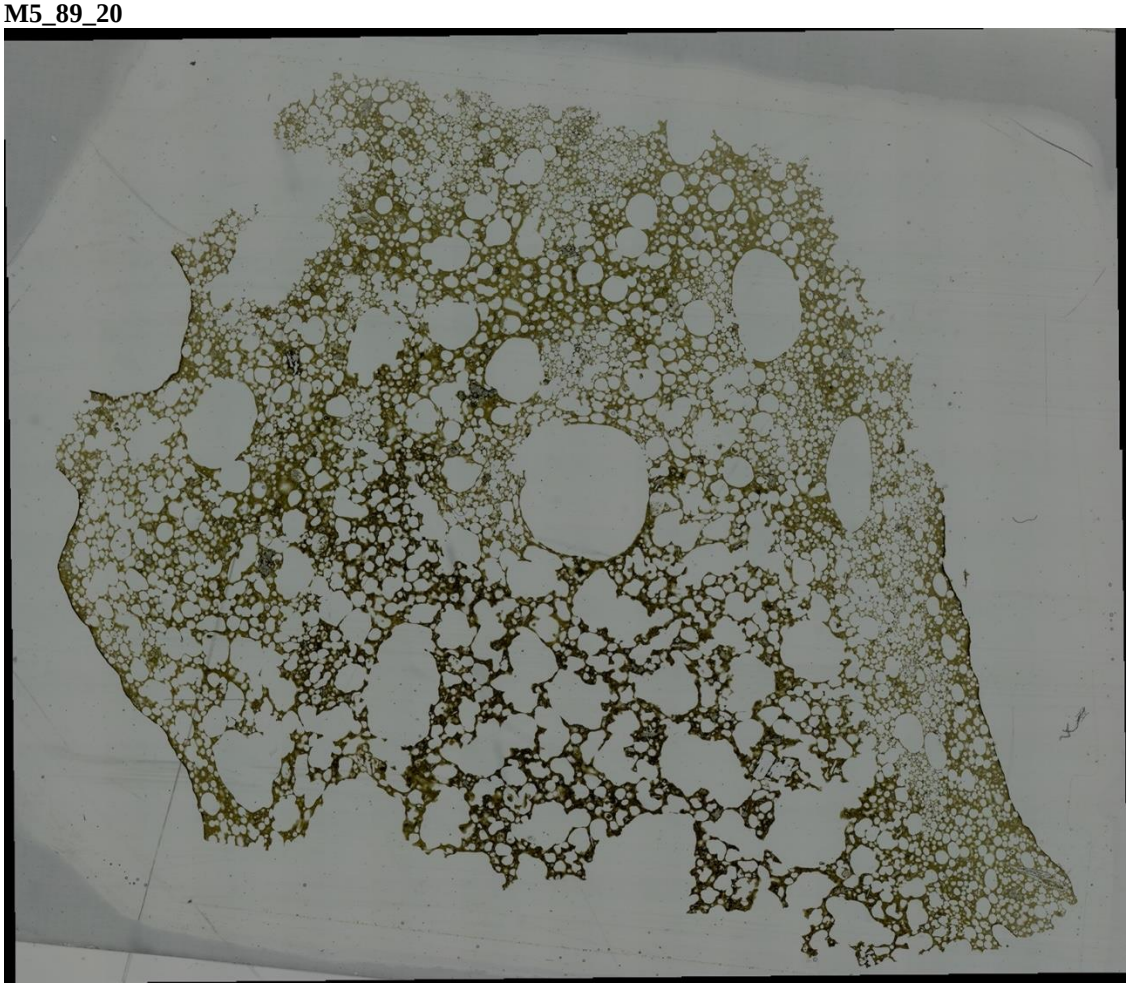

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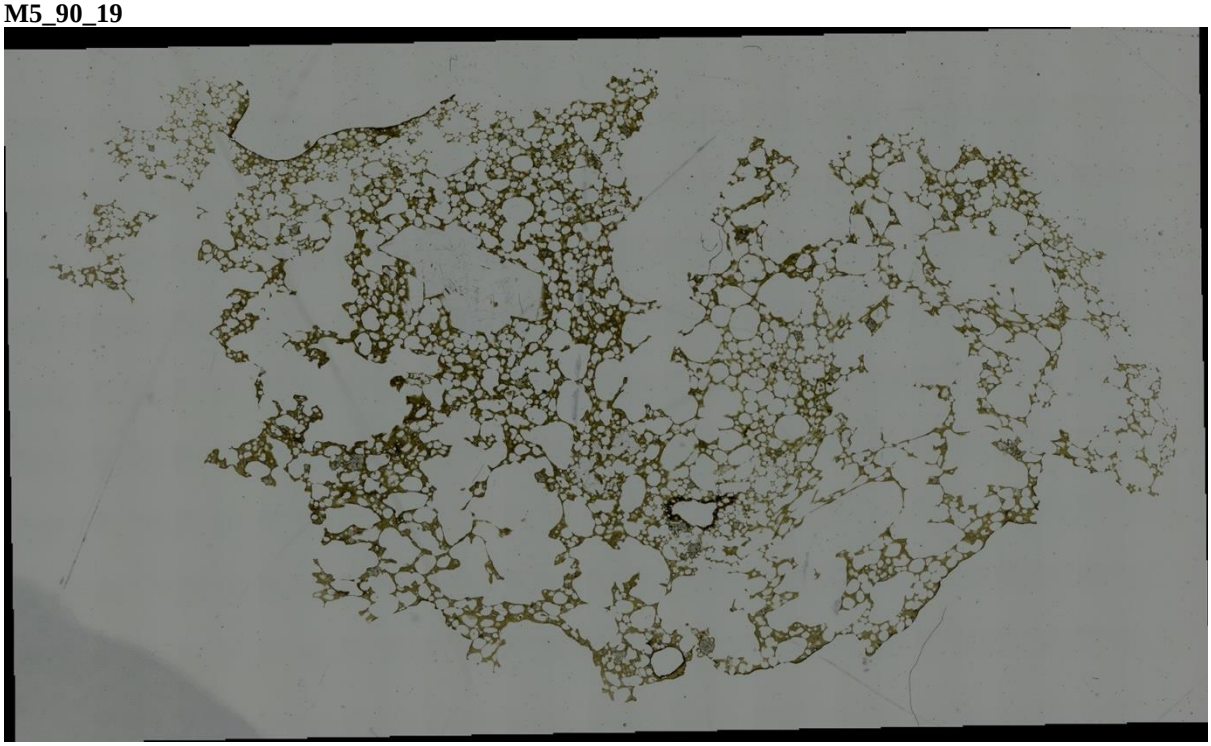

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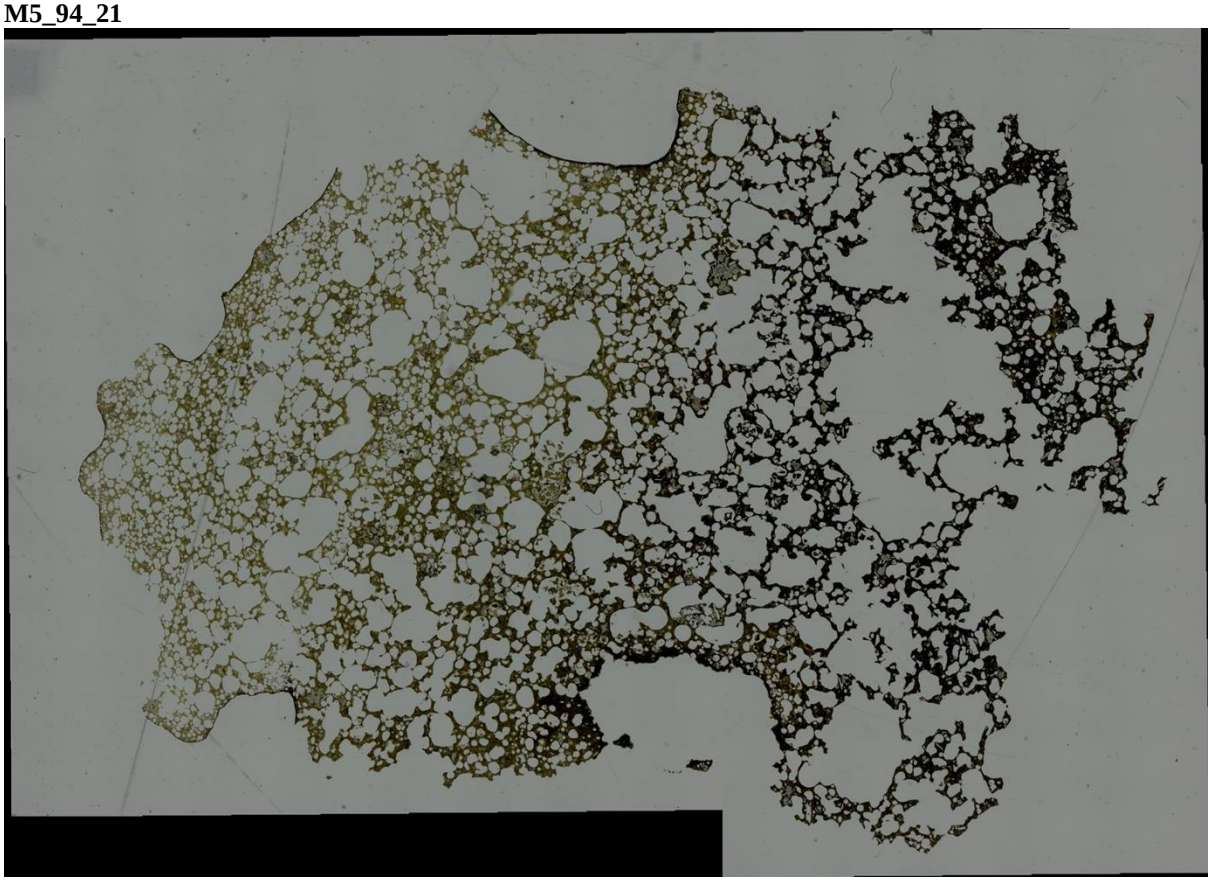

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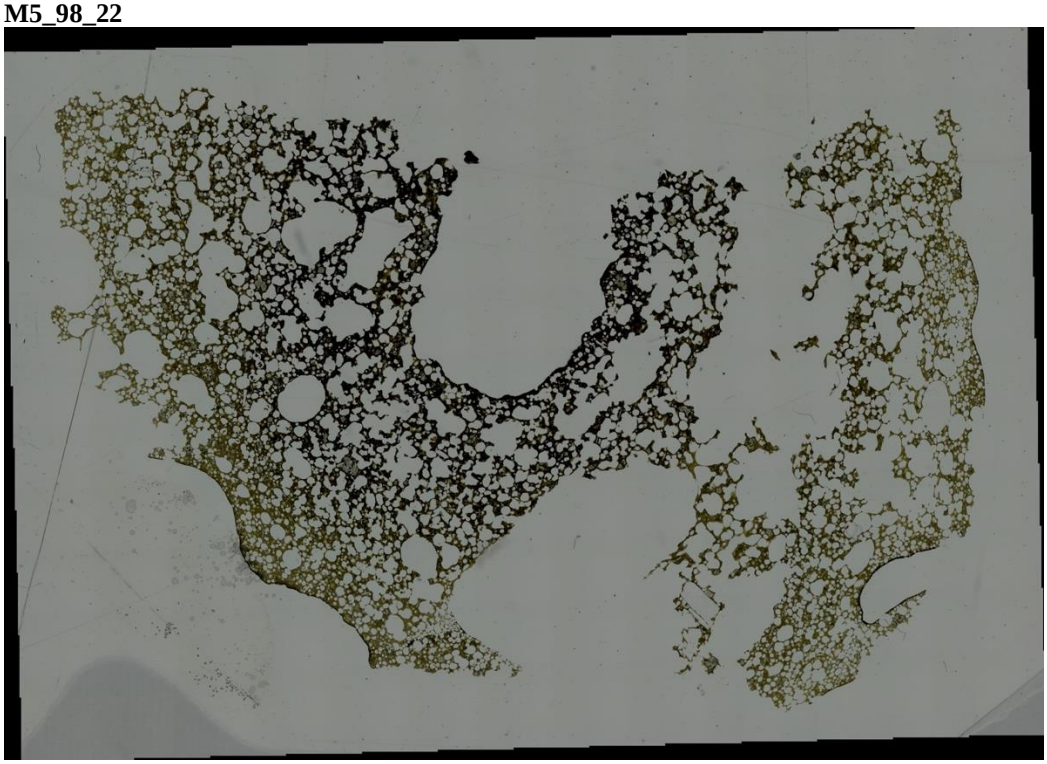

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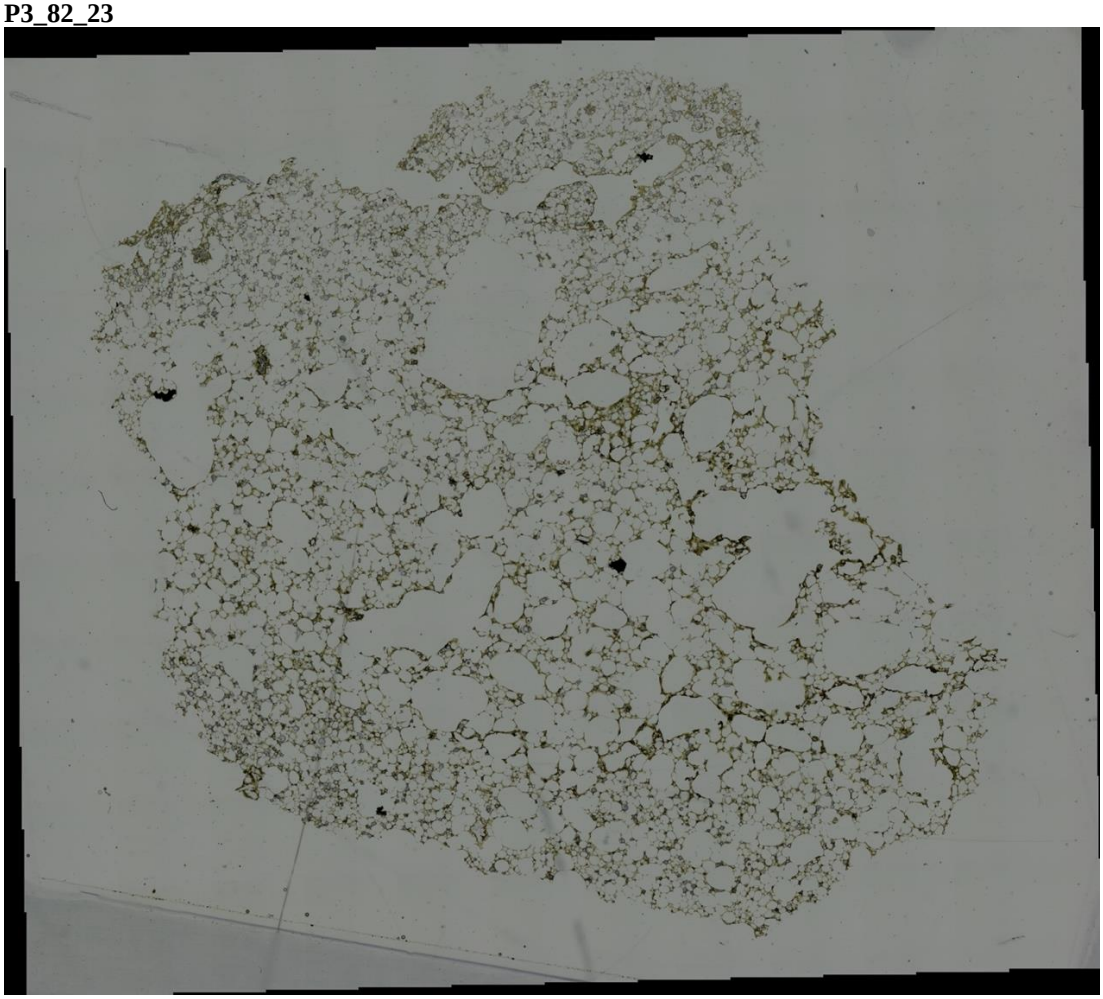

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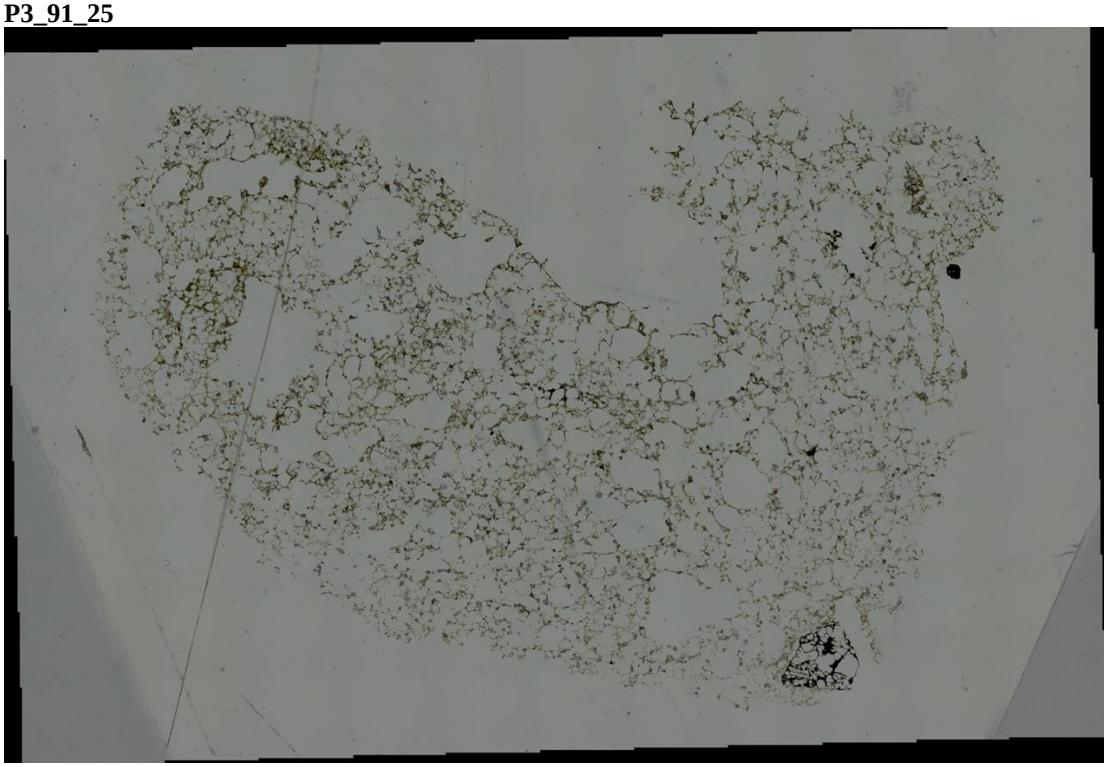
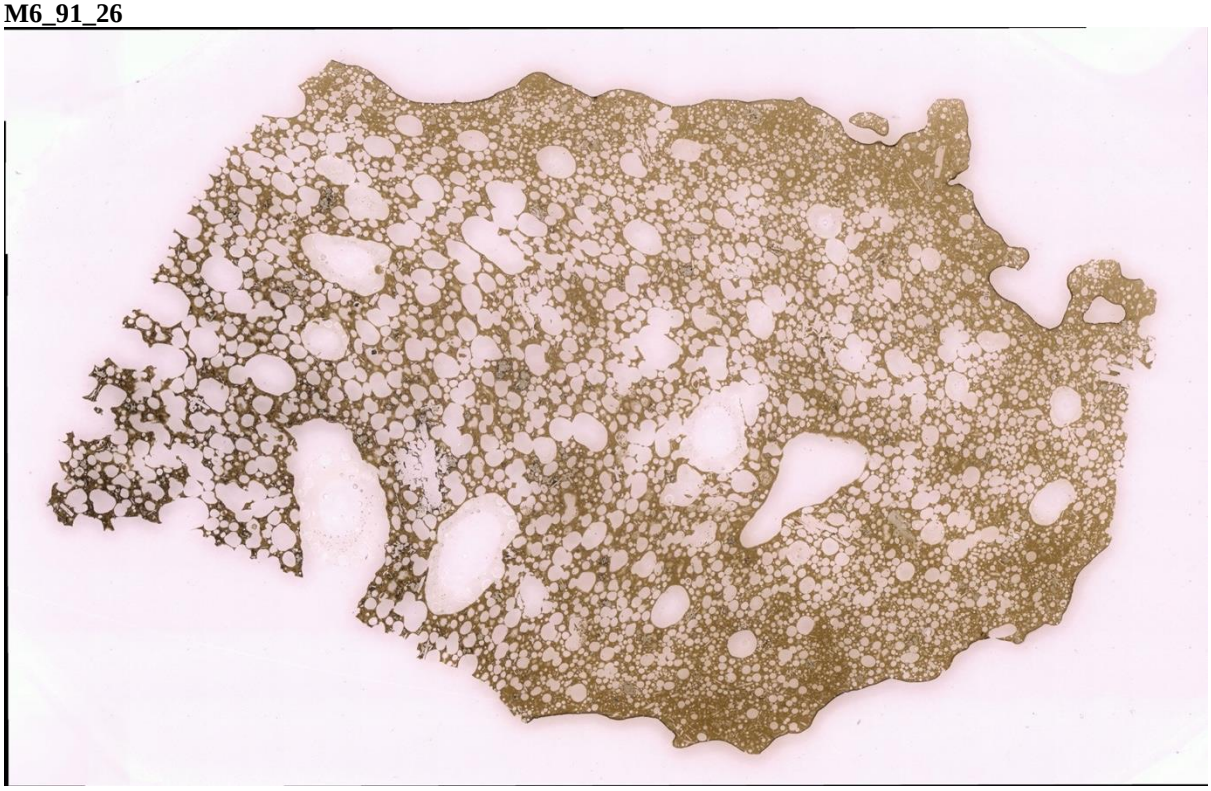


M6

M6_91_26



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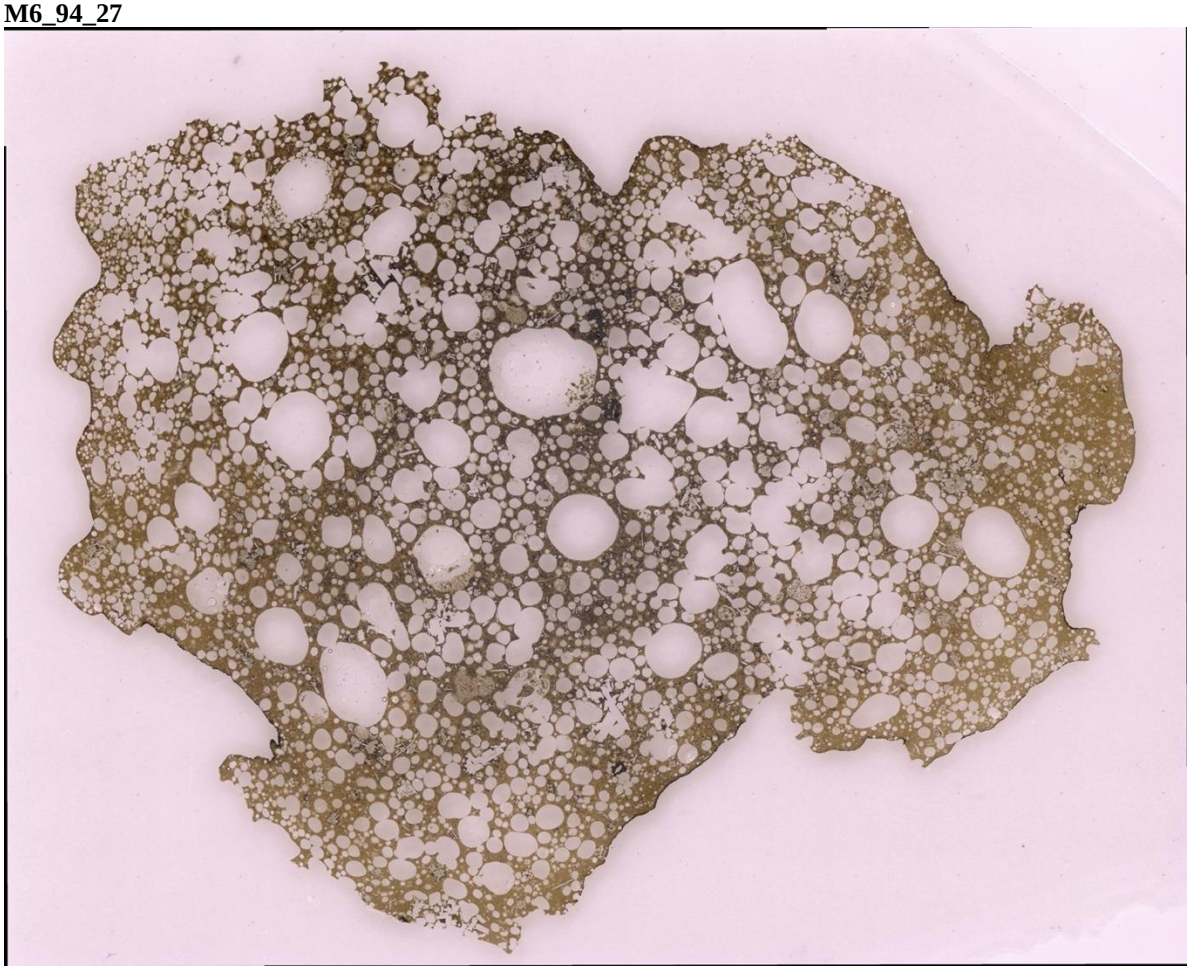

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