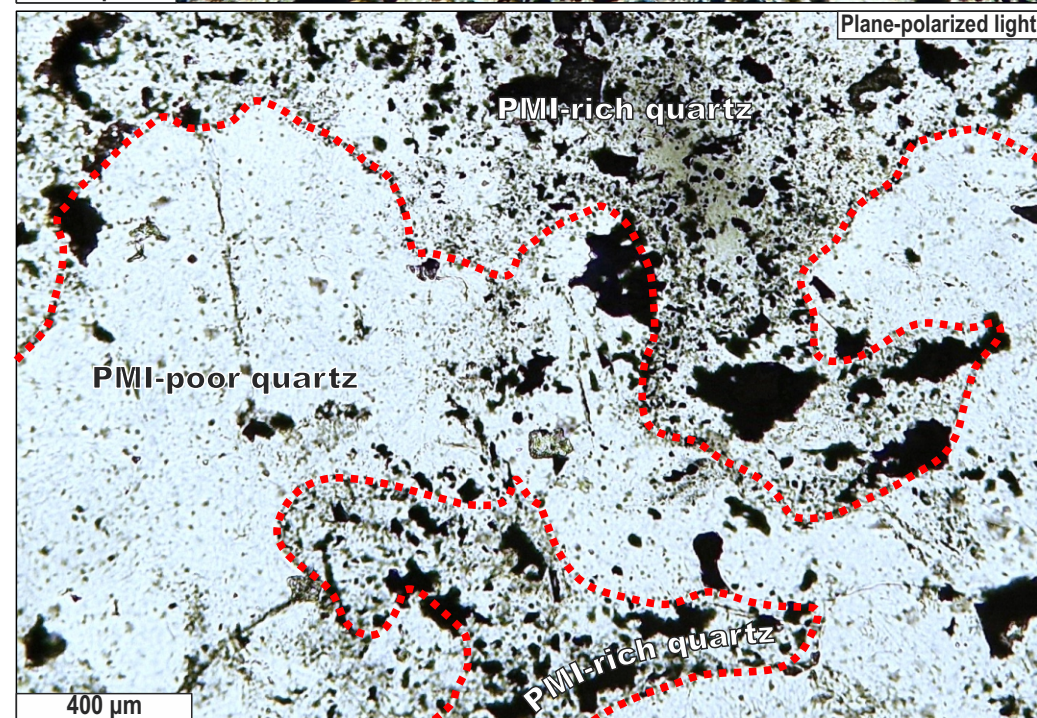
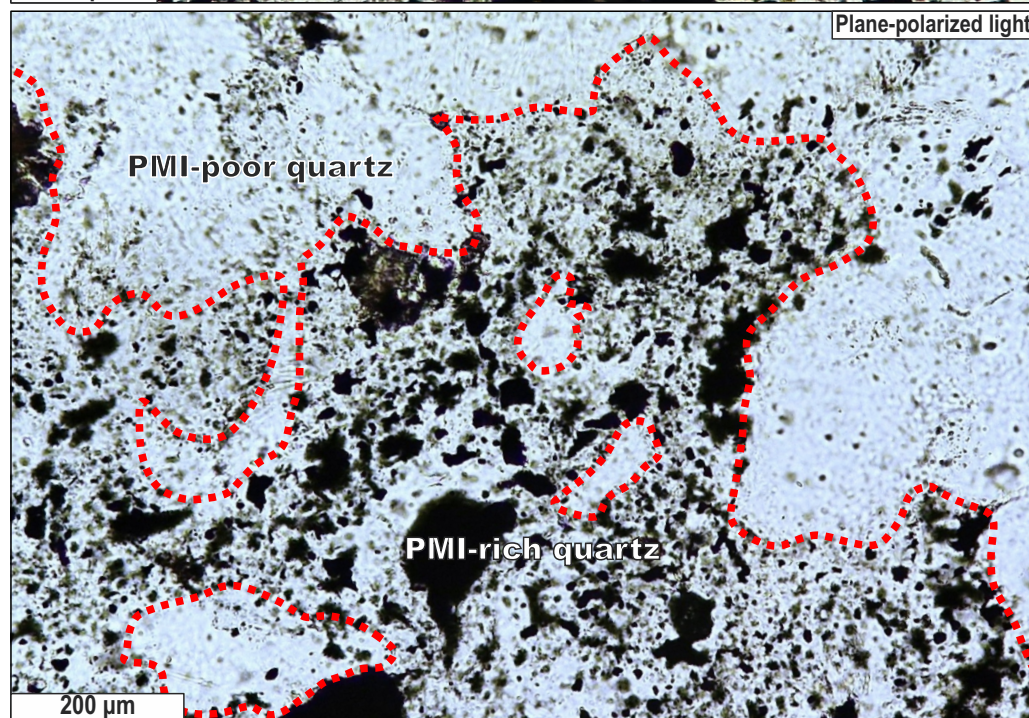
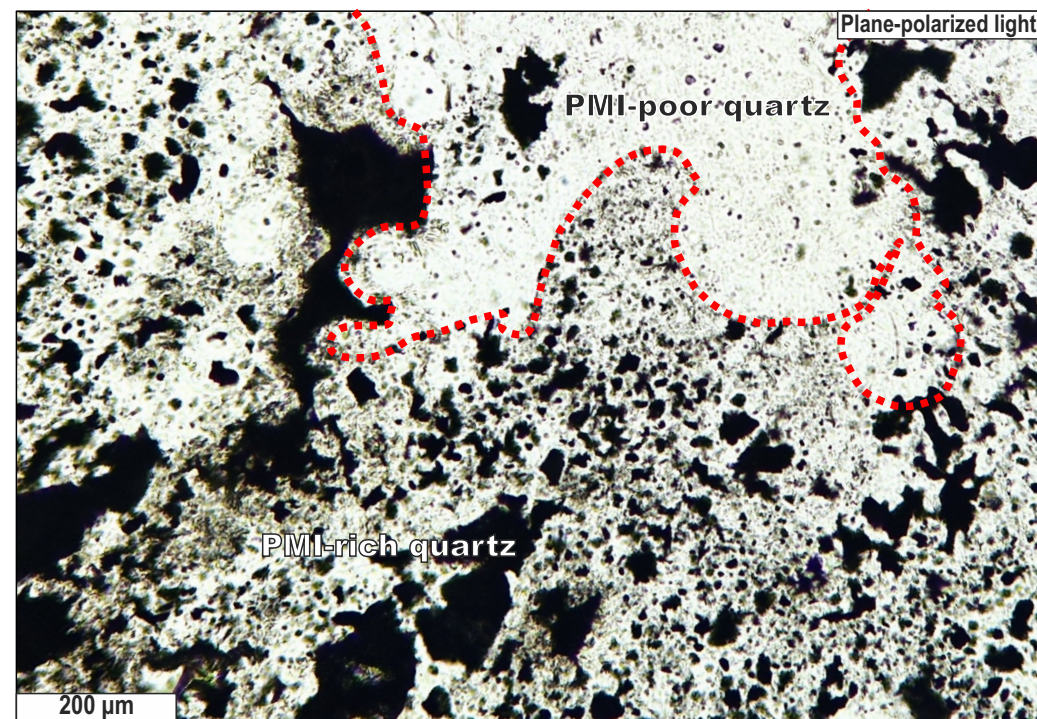
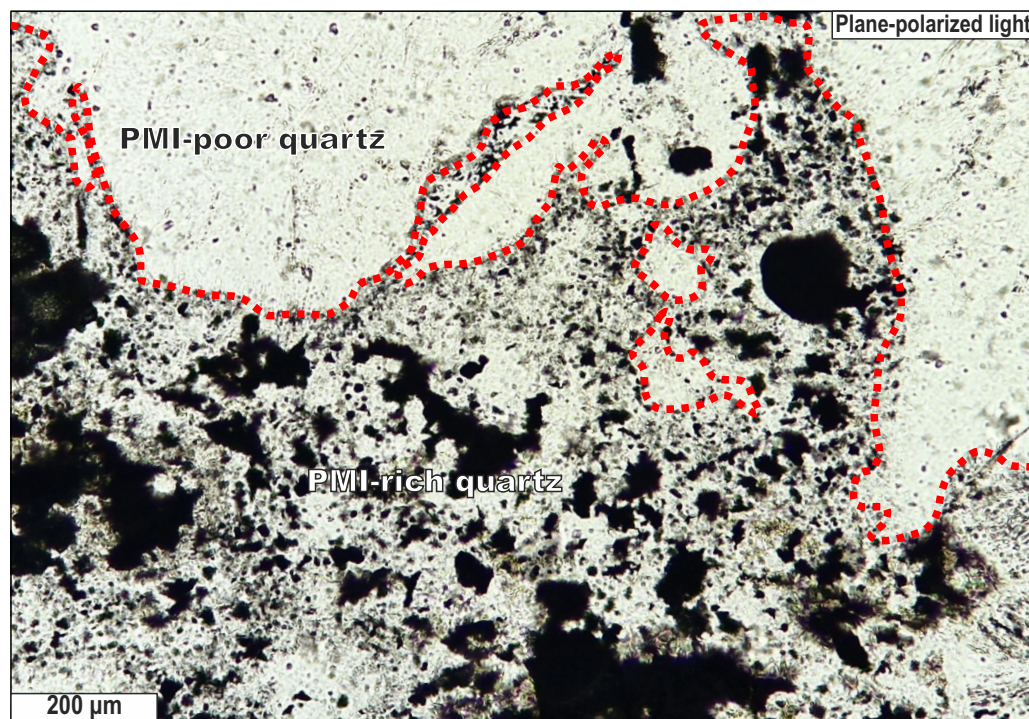


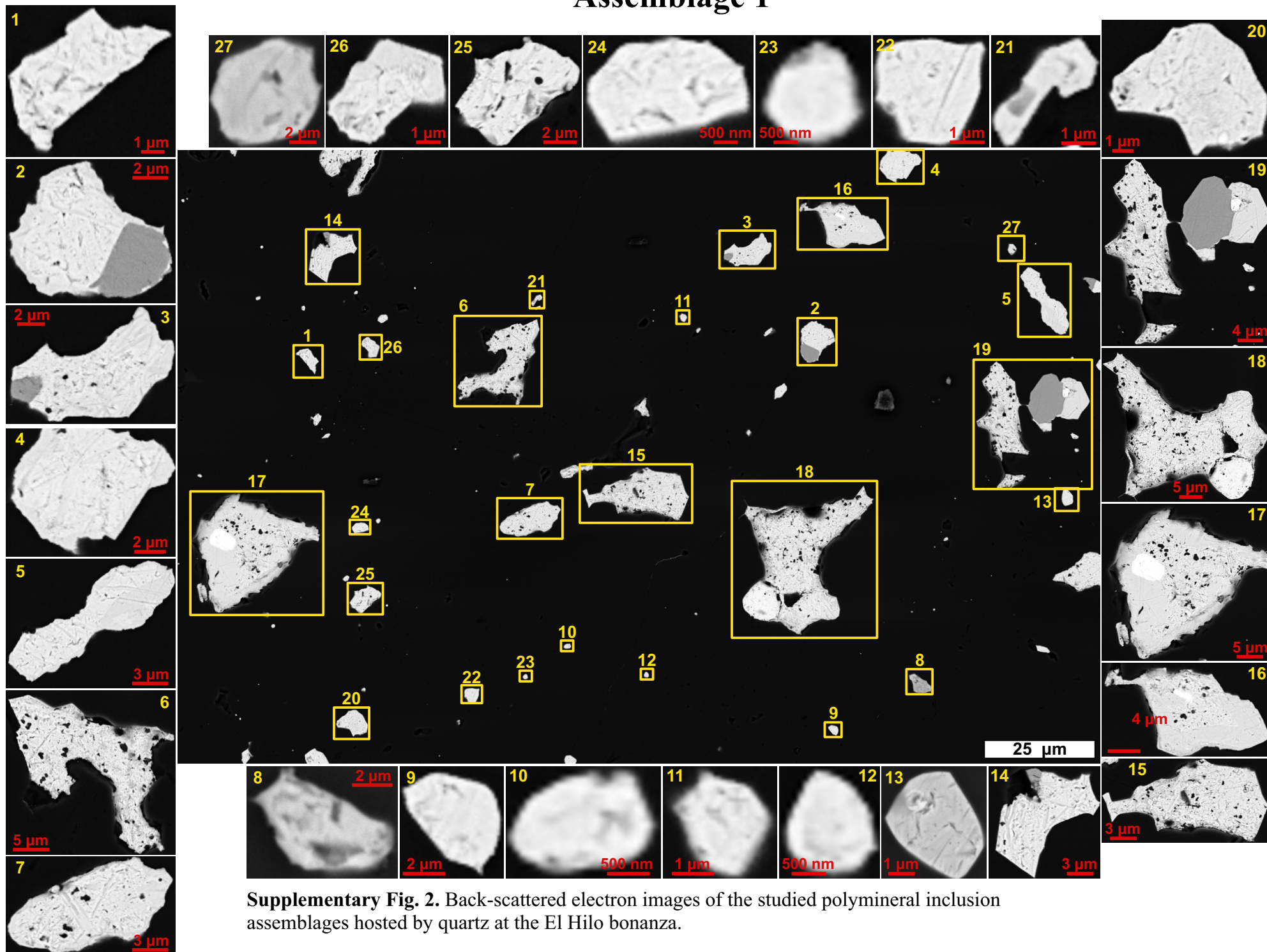
Transient non-soluble noble metal transport in hydrothermal ore systems



Supplementary Fig. 1. Plane-polarized light photomicrographs showing replacement textures (e.g., “islands”, embayments, lobulated and irregular contacts) indicating that PMI-rich quartz replaces PMI-poor quartz. These textures suggest coupled dissolution-reprecipitation reactions between PMI-poor quartz and hydrothermal fluids carrying PMIs. PMI: Polyminerall inclusions.

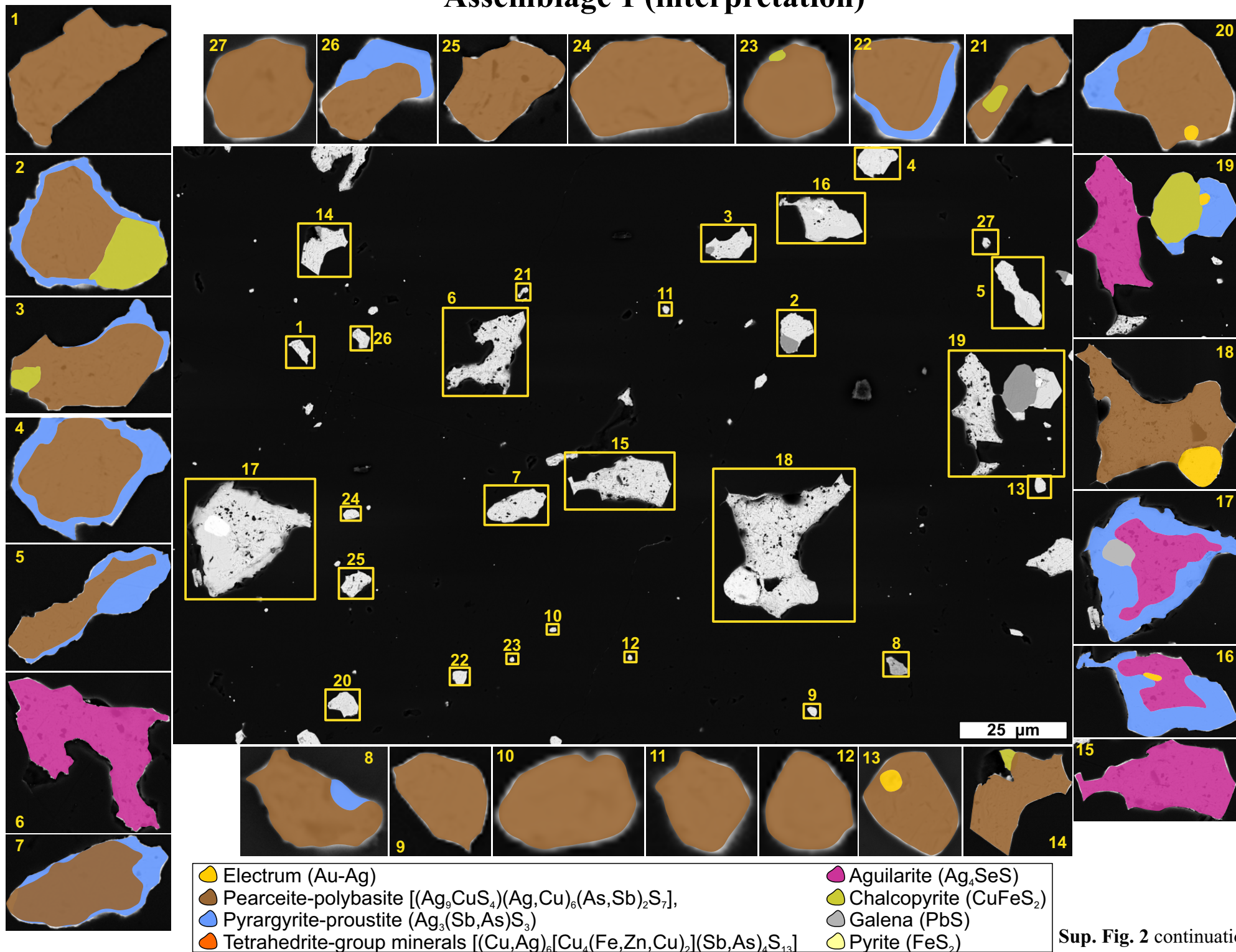
2. SUPPLEMENTAL FIGURES

Assemblage 1

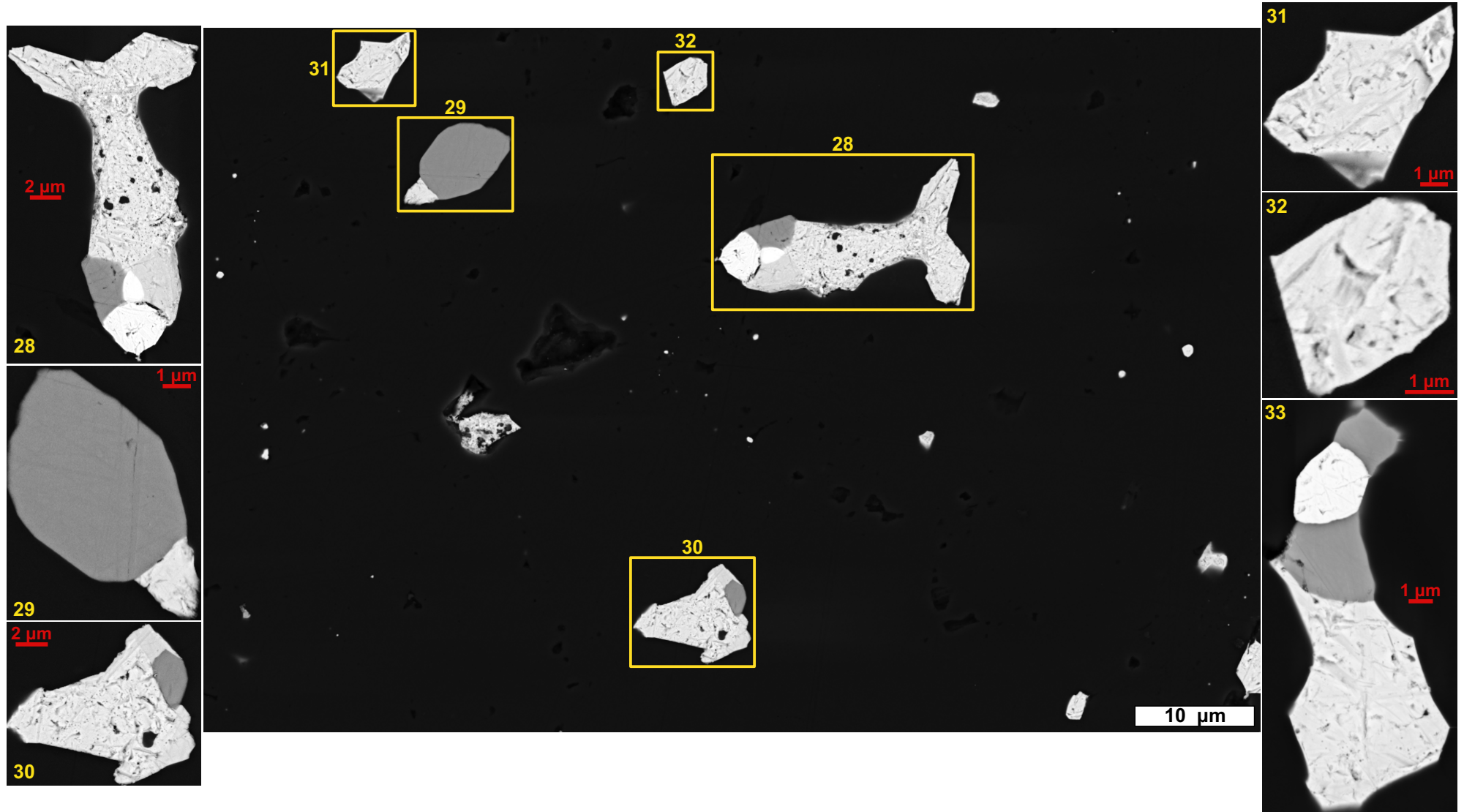


Supplementary Fig. 2. Back-scattered electron images of the studied polymineral inclusion assemblages hosted by quartz at the El Hilo bonanza.

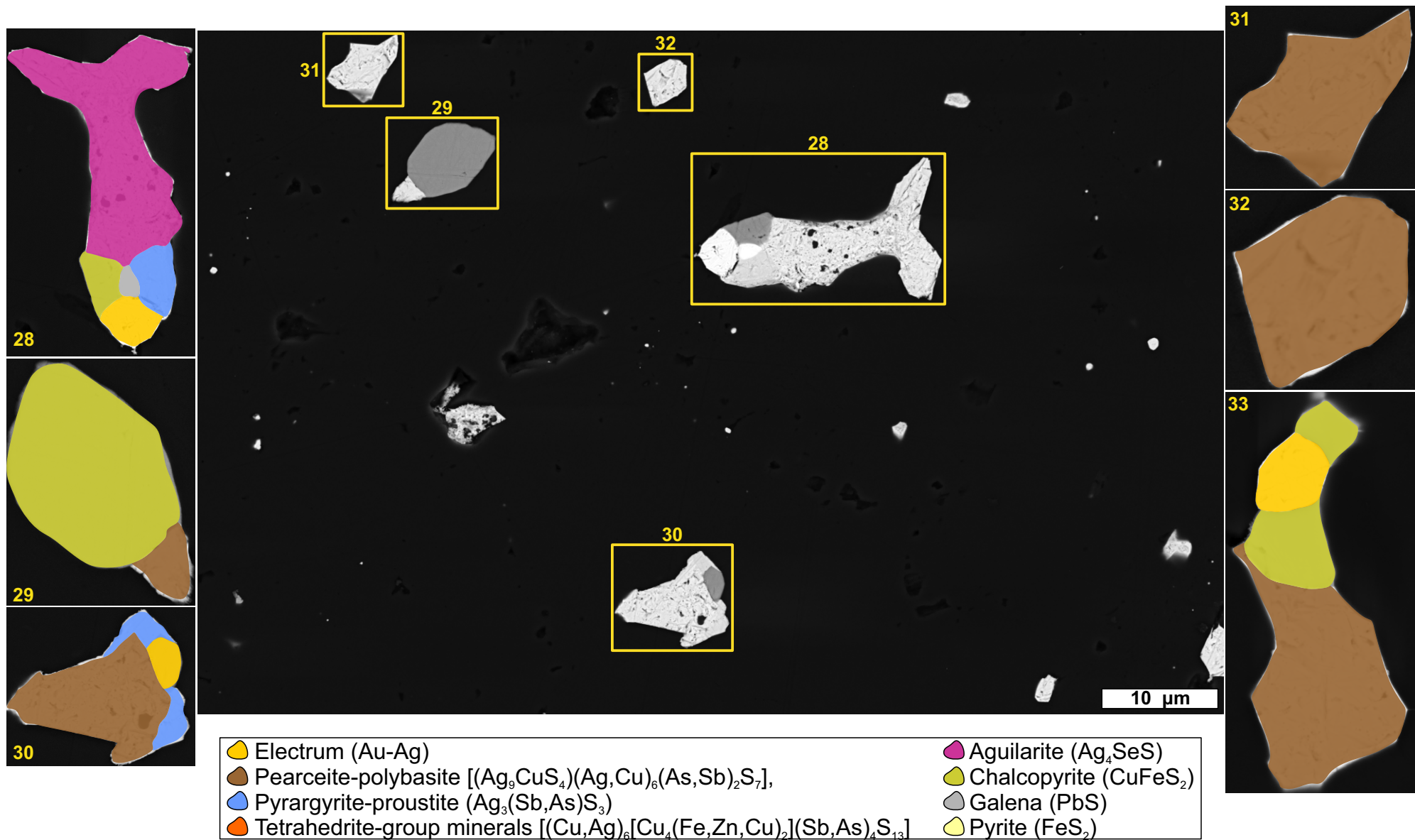
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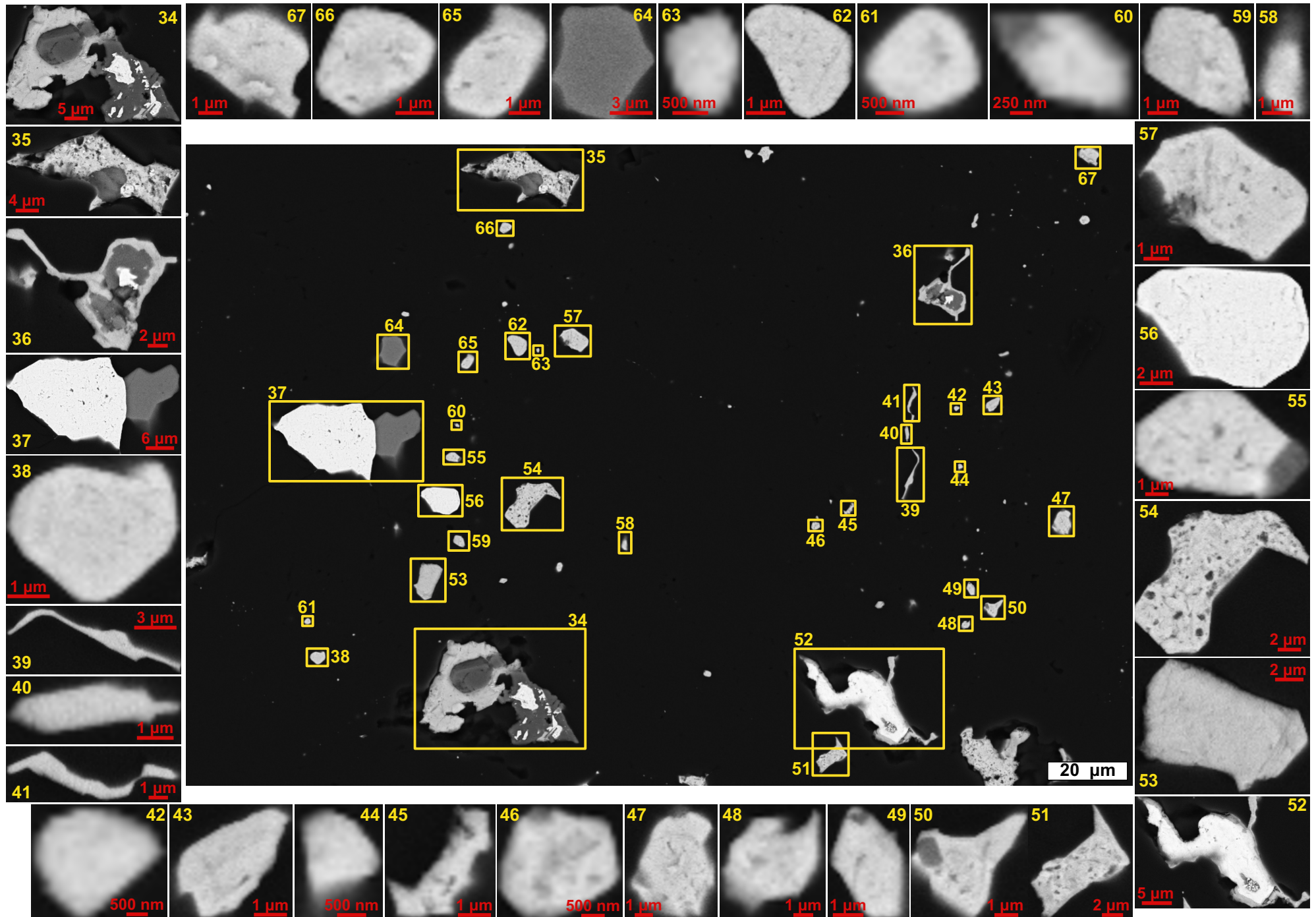
Assemblage 2



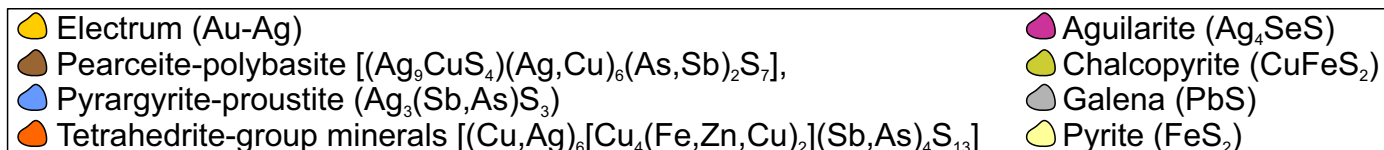
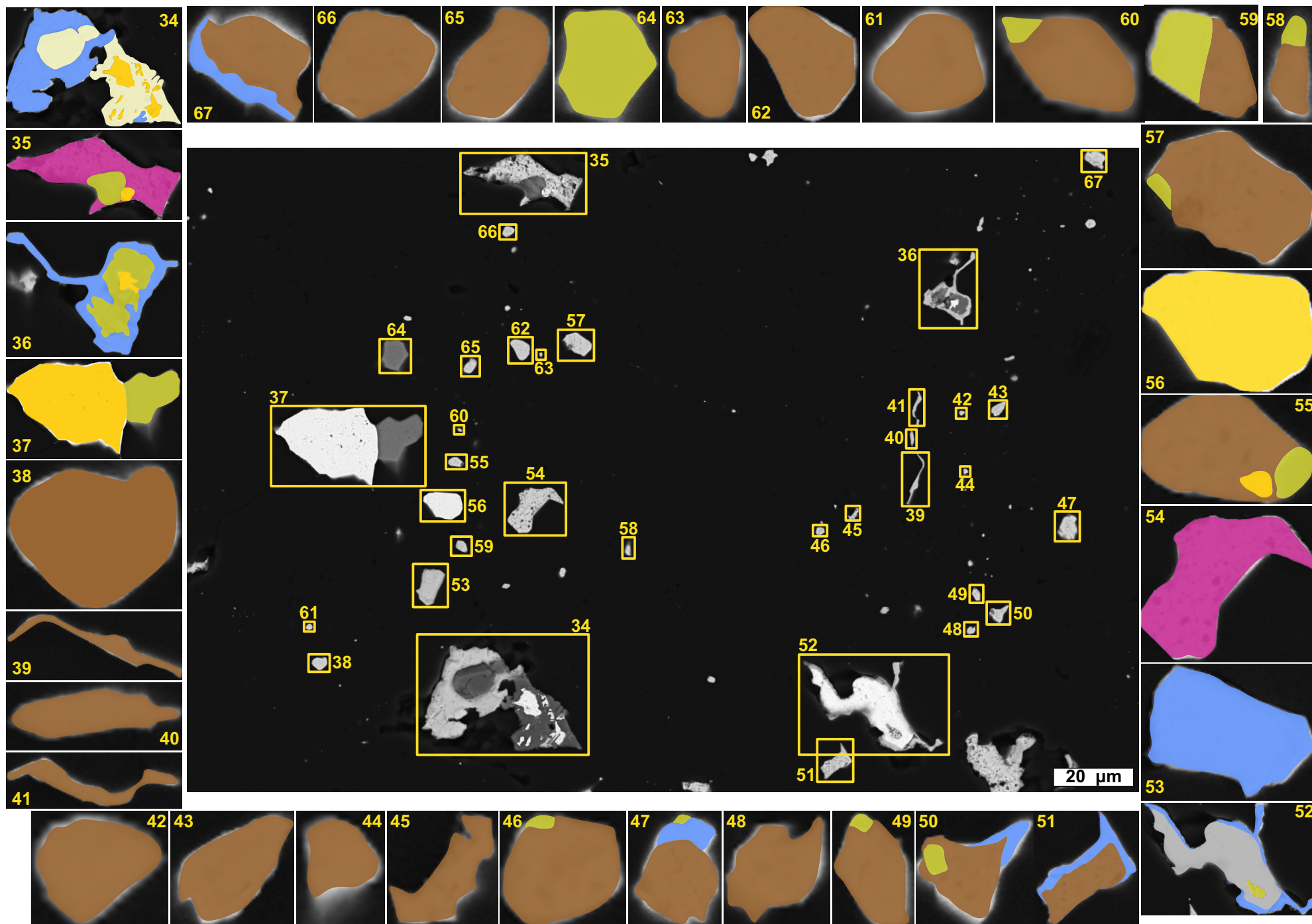
Assemblage 2 (interpretation)



Assemblage 3

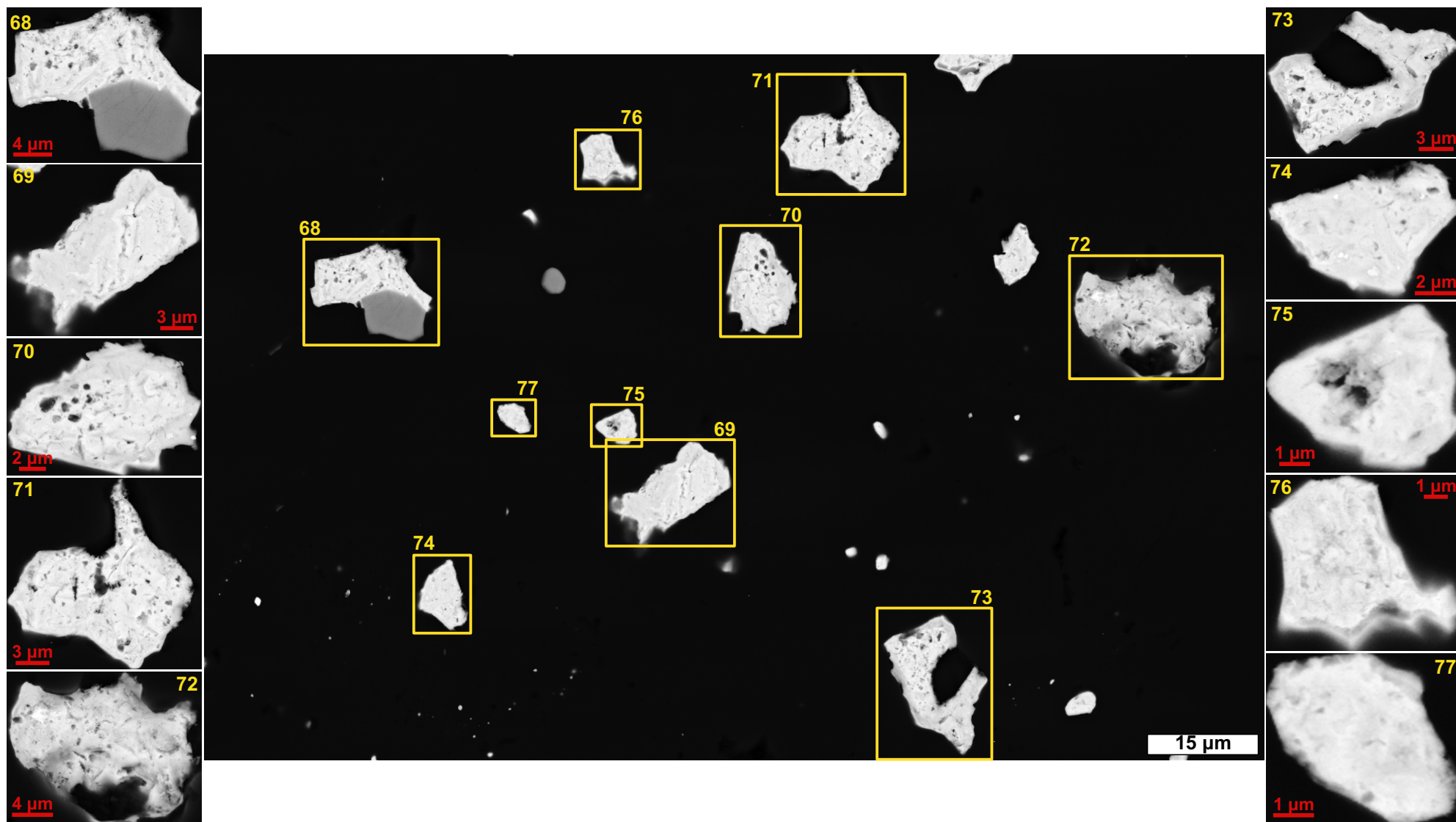


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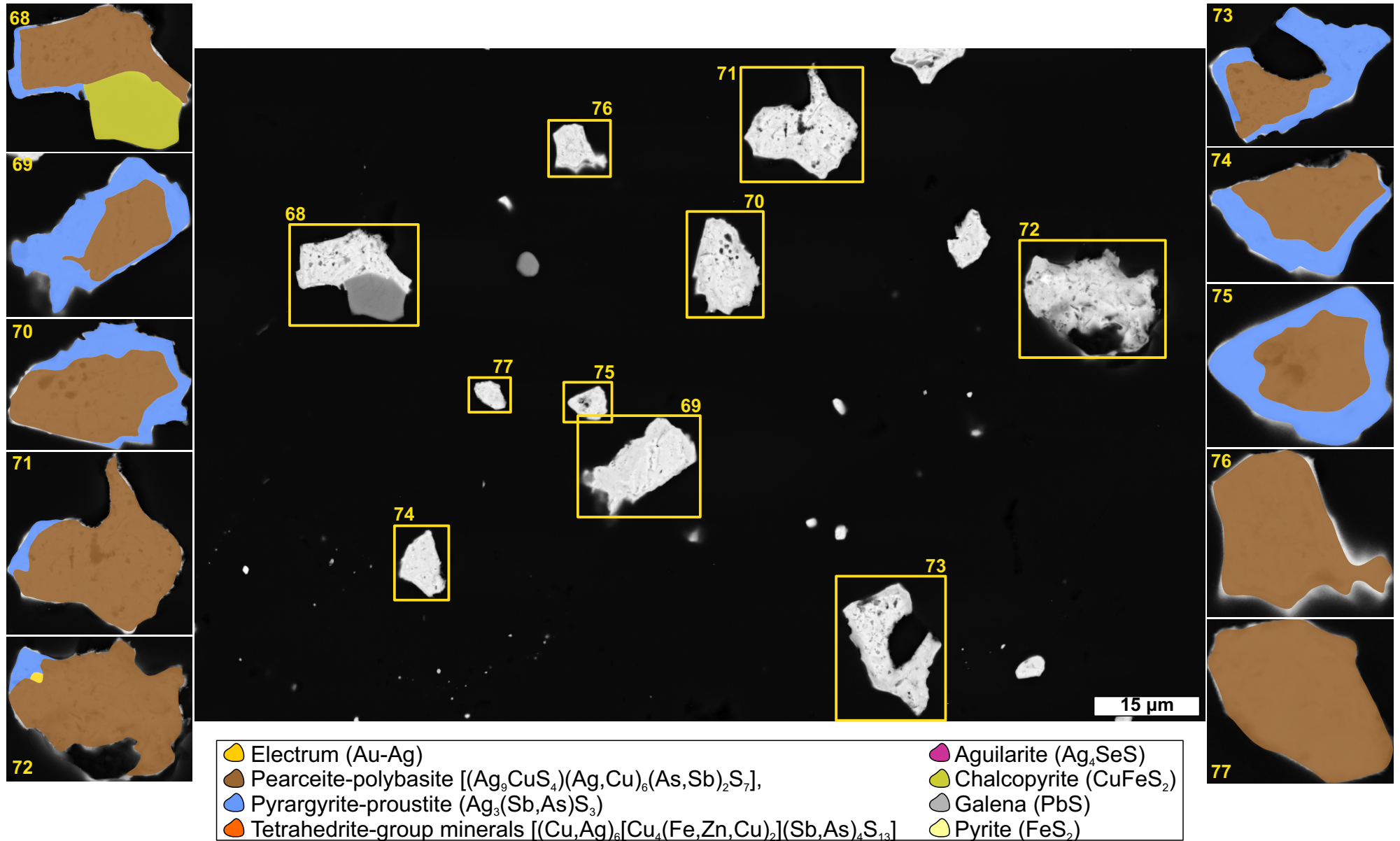


Sup. Fig. 2 continuation

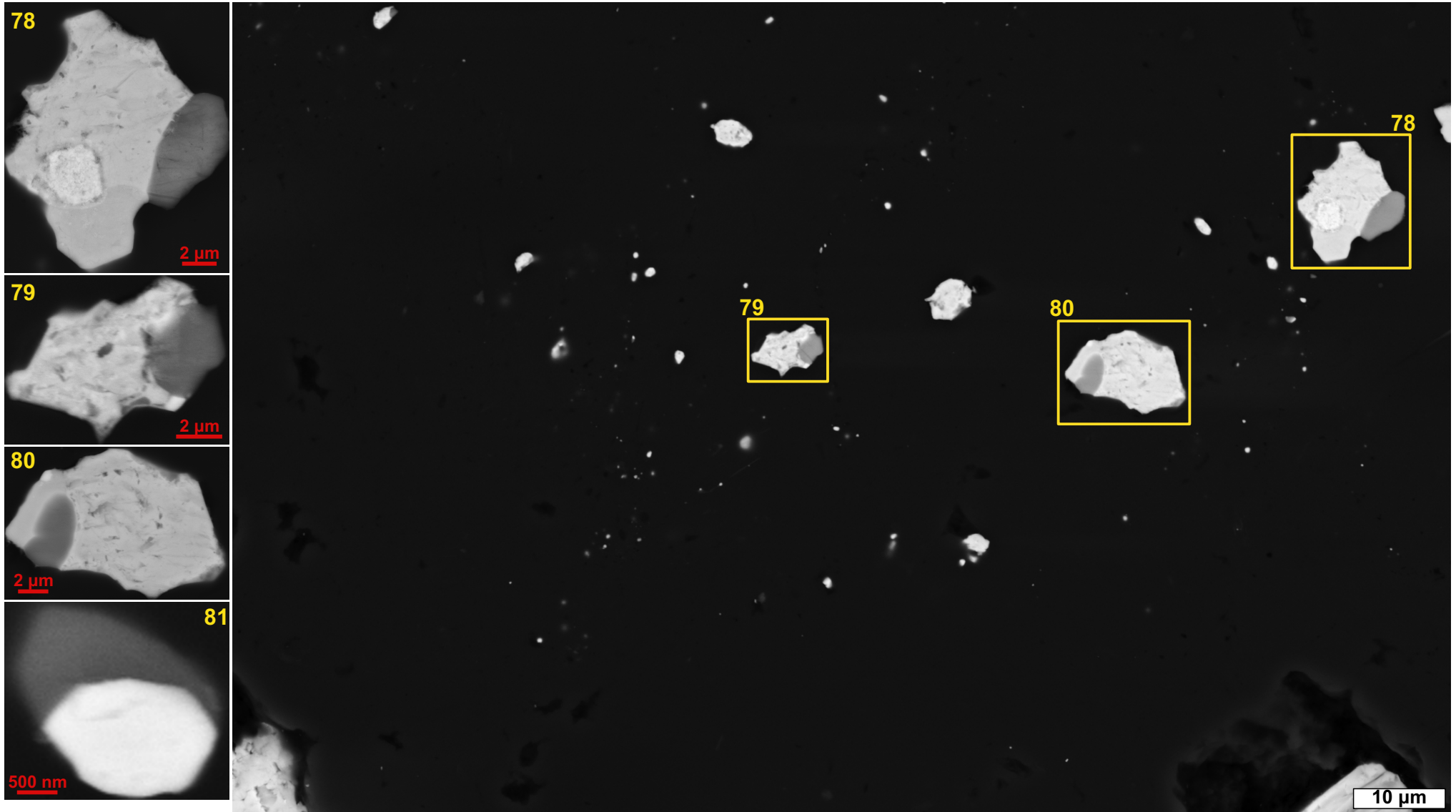
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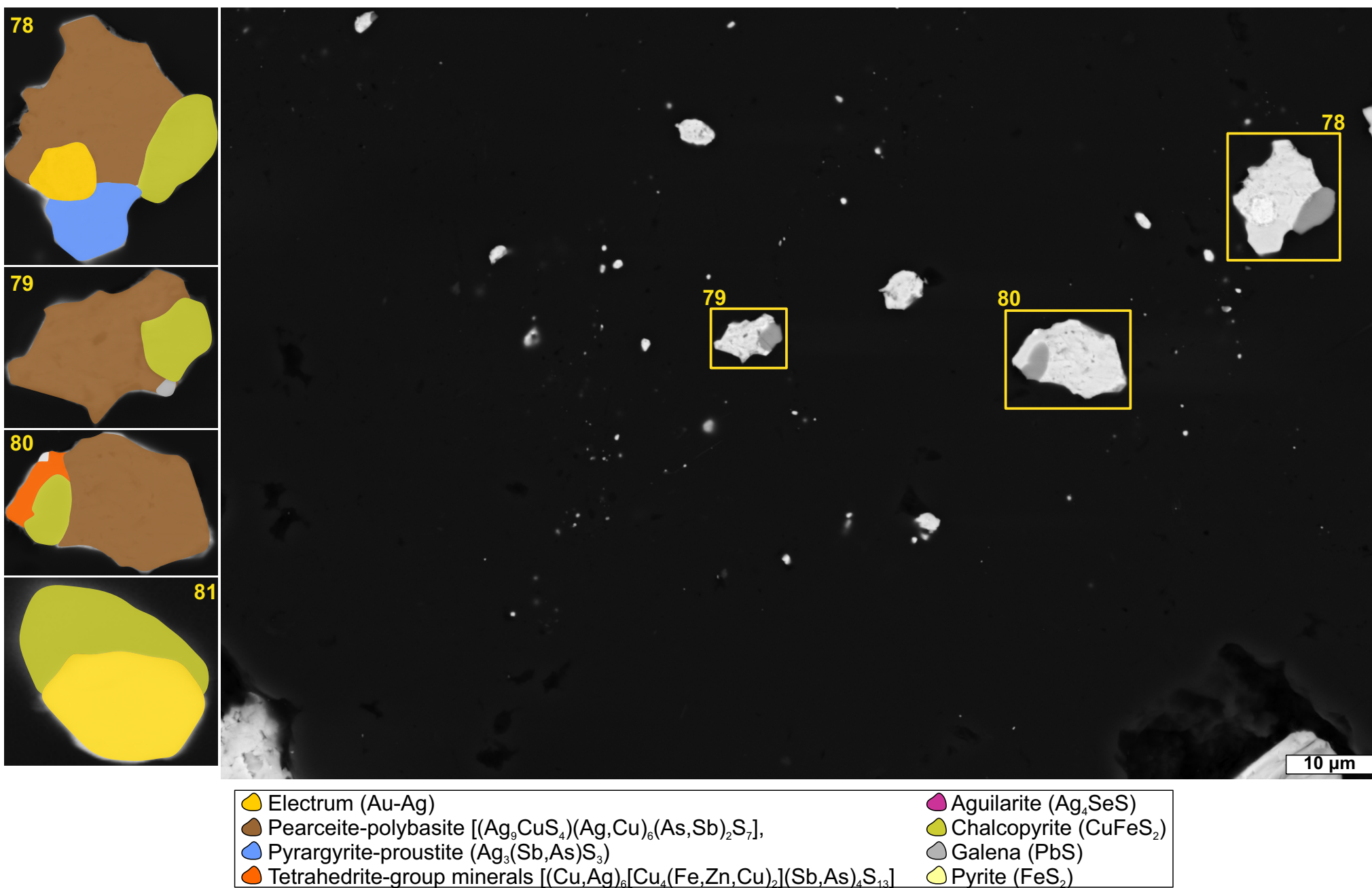
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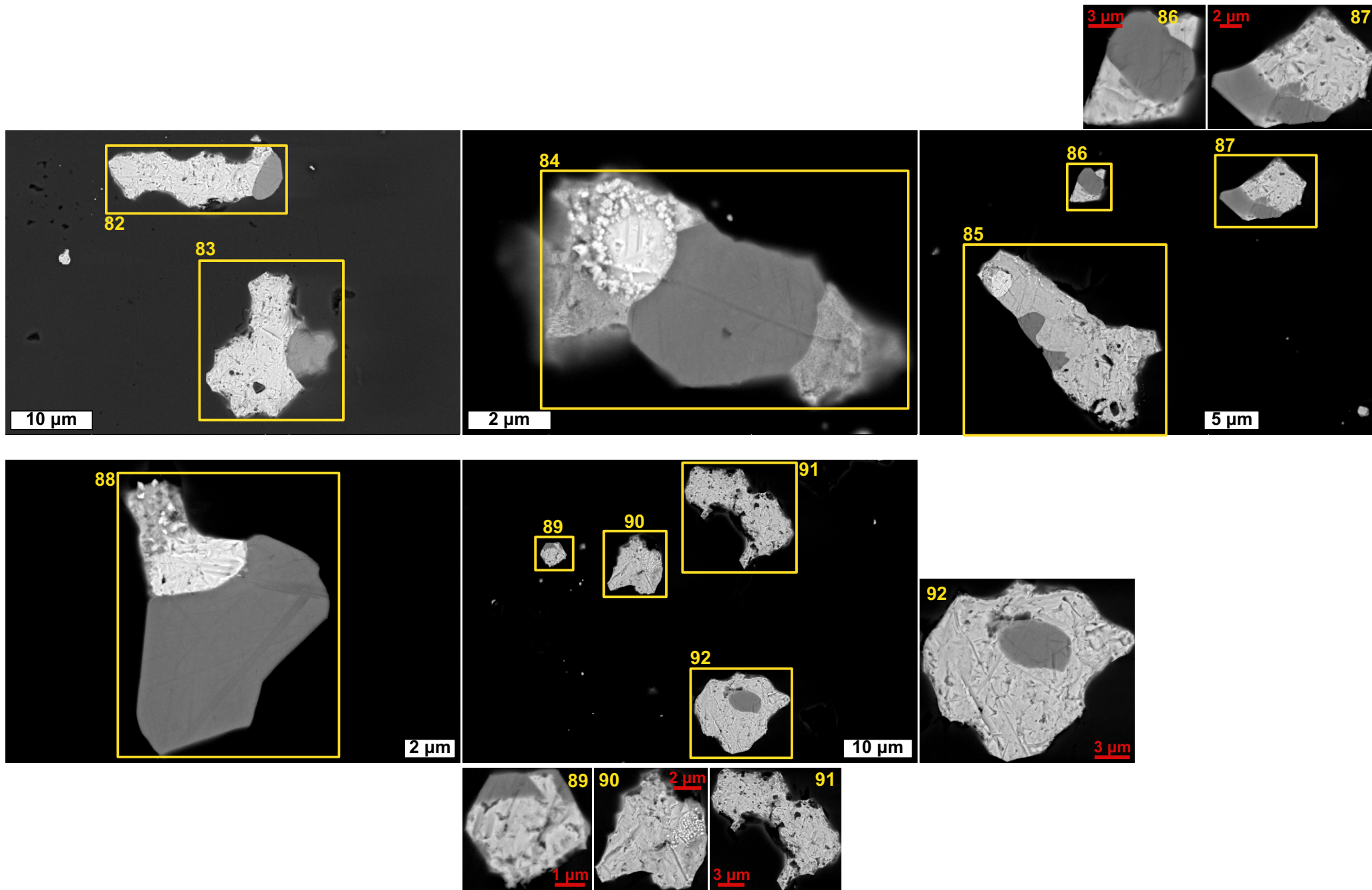
Assemblage 5



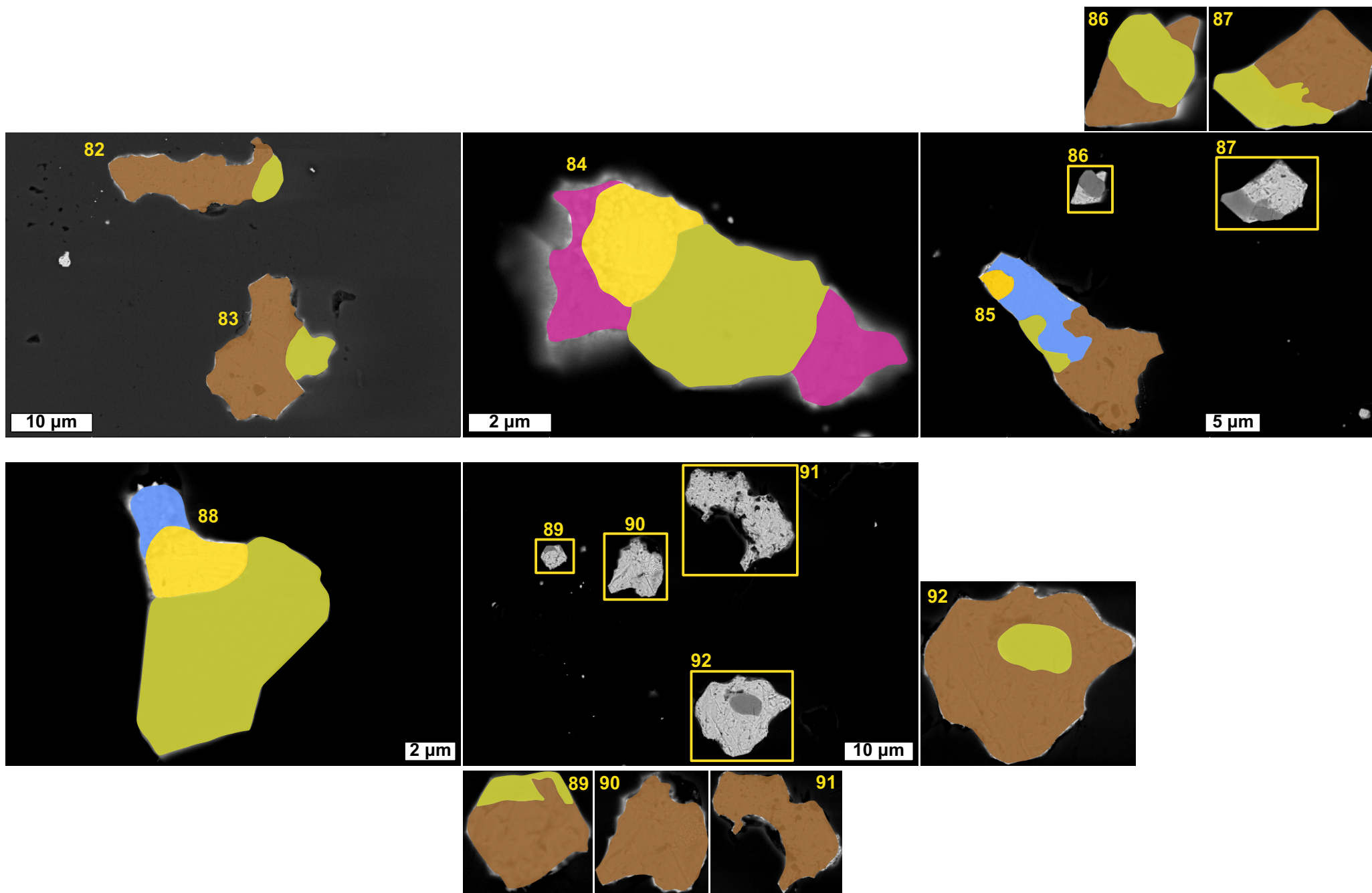
Assemblage 5 (interpretation)



Assemblage 5



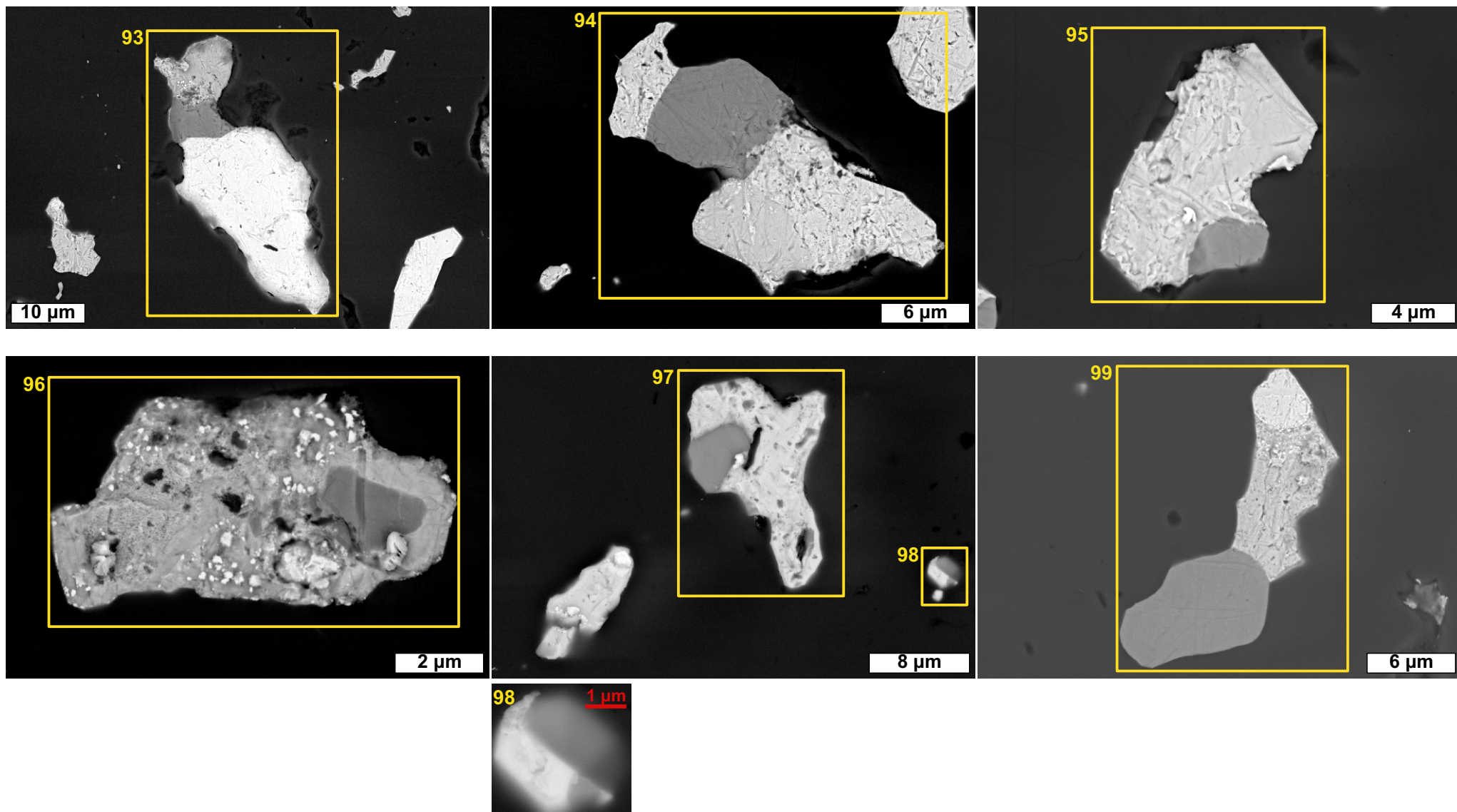
Assemblage 5 (interpretation)



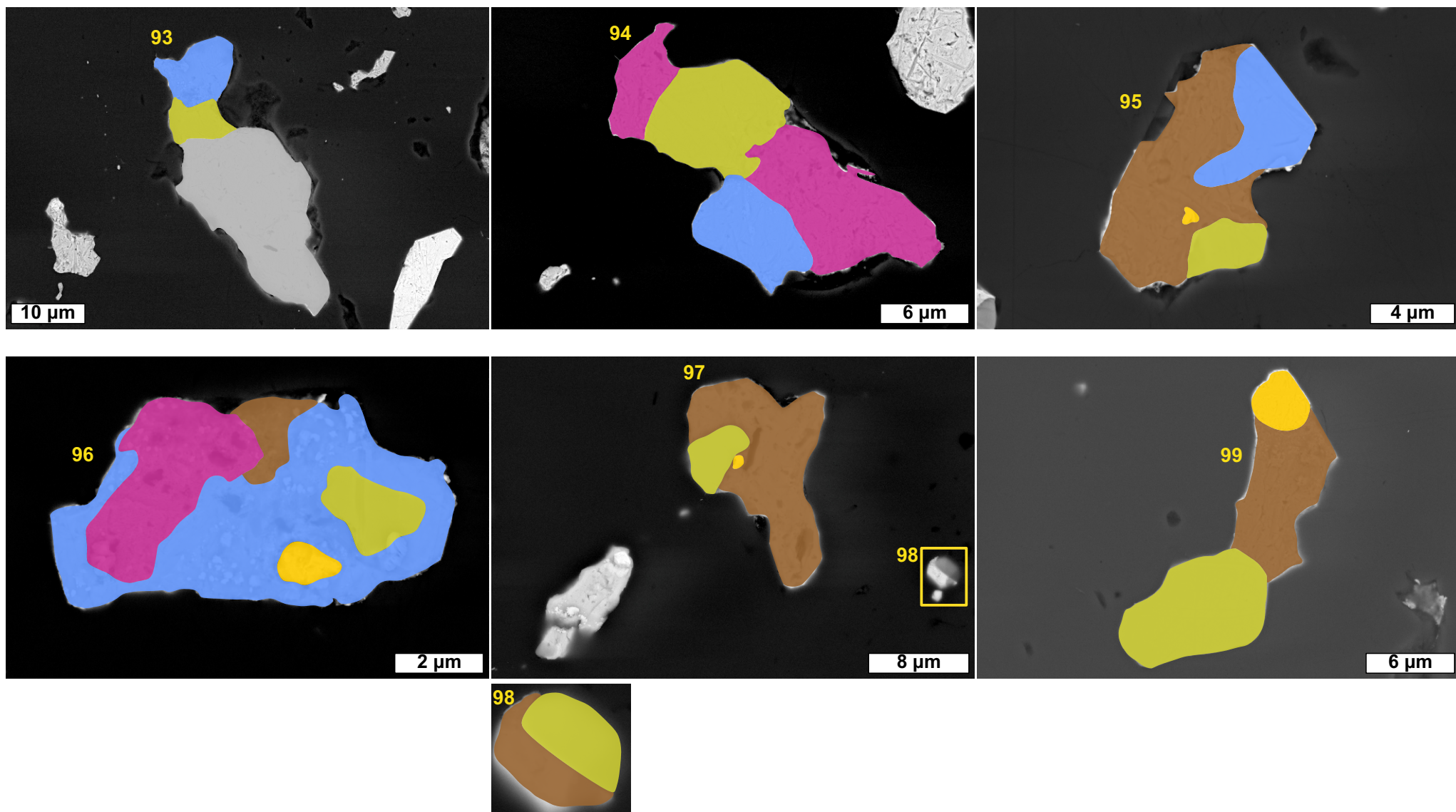
- | | |
|---|---|
| ● Electrum (Au-Ag) | ● Aguilarite (Ag_4SeS) |
| ● Pearceite-polybasite $[(\text{Ag}_9\text{CuS}_4)(\text{Ag}, \text{Cu})_6(\text{As}, \text{Sb})_2\text{S}_7]$, | ● Chalcopyrite (CuFeS_2) |
| ● Pyrargyrite-proustite $(\text{Ag}_3(\text{Sb}, \text{As})\text{S}_3)$ | ● Galena (PbS) |
| ● Tetrahedrite-group minerals $[(\text{Cu}, \text{Ag})_6[\text{Cu}_4(\text{Fe}, \text{Zn}, \text{Cu})_2](\text{Sb}, \text{As})_4\text{S}_{13}]$ | ● Pyrite (FeS_2) |

Sup. Fig. 2 continuation

Assemblage 5



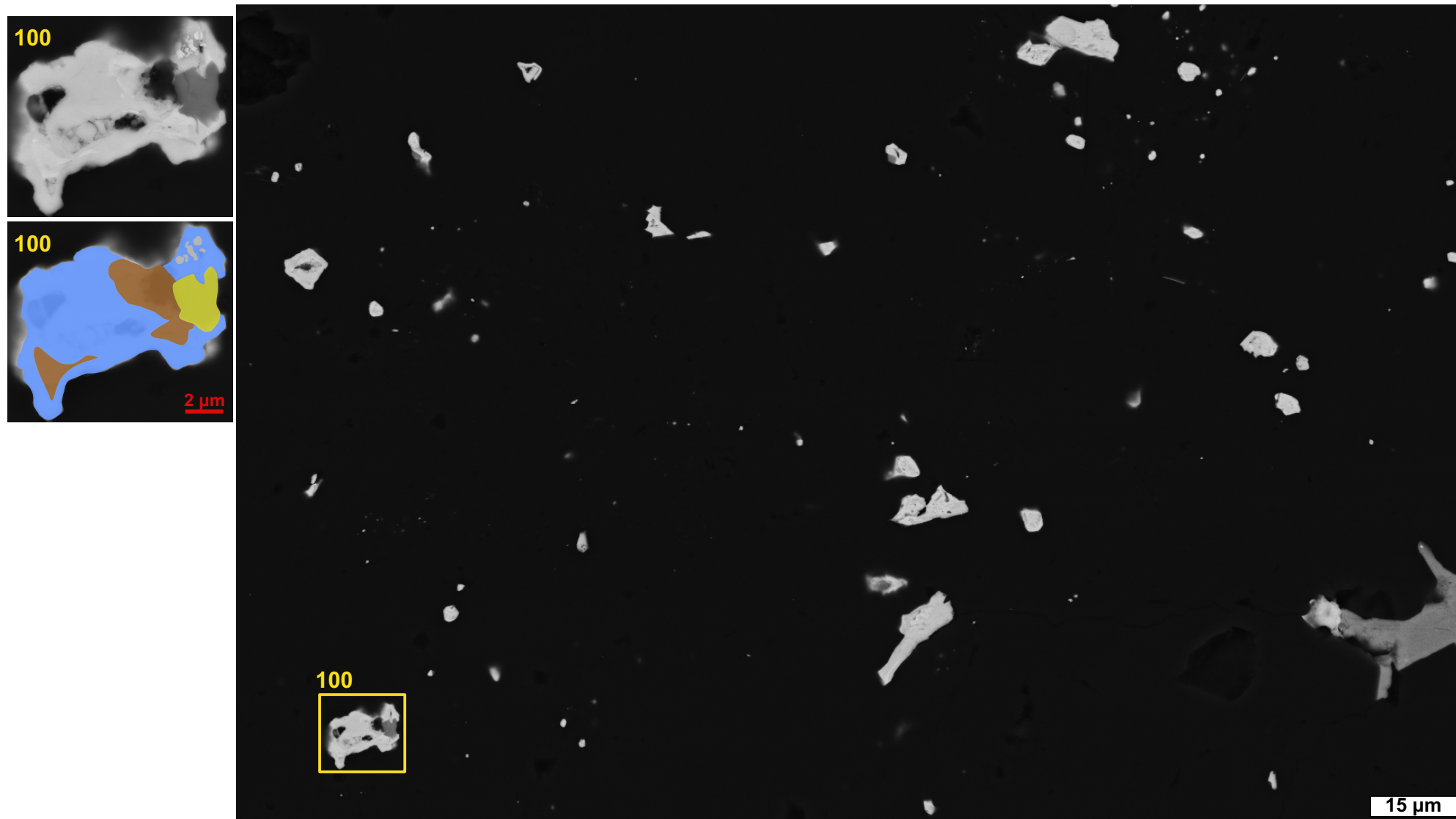
Assemblage 5 (interpretation)



<p>Electrum (Au-Ag)</p> <p>Pearceite-polybasite $[(\text{Ag}_9\text{CuS}_4)(\text{Ag,Cu})_6(\text{As,Sb})_2\text{S}_7]$,</p> <p>Pyrargyrite-proustite $(\text{Ag}_3(\text{Sb,As})\text{S}_3)$</p> <p>Tetrahedrite-group minerals $[(\text{Cu,Ag})_6[\text{Cu}_4(\text{Fe,Zn,Cu})_2](\text{Sb,As})_4\text{S}_{13}]$</p>	<p>Aguilarite (Ag_4SeS)</p> <p>Chalcopyrite (CuFeS_2)</p> <p>Galena (PbS)</p> <p>Pyrite (FeS_2)</p>
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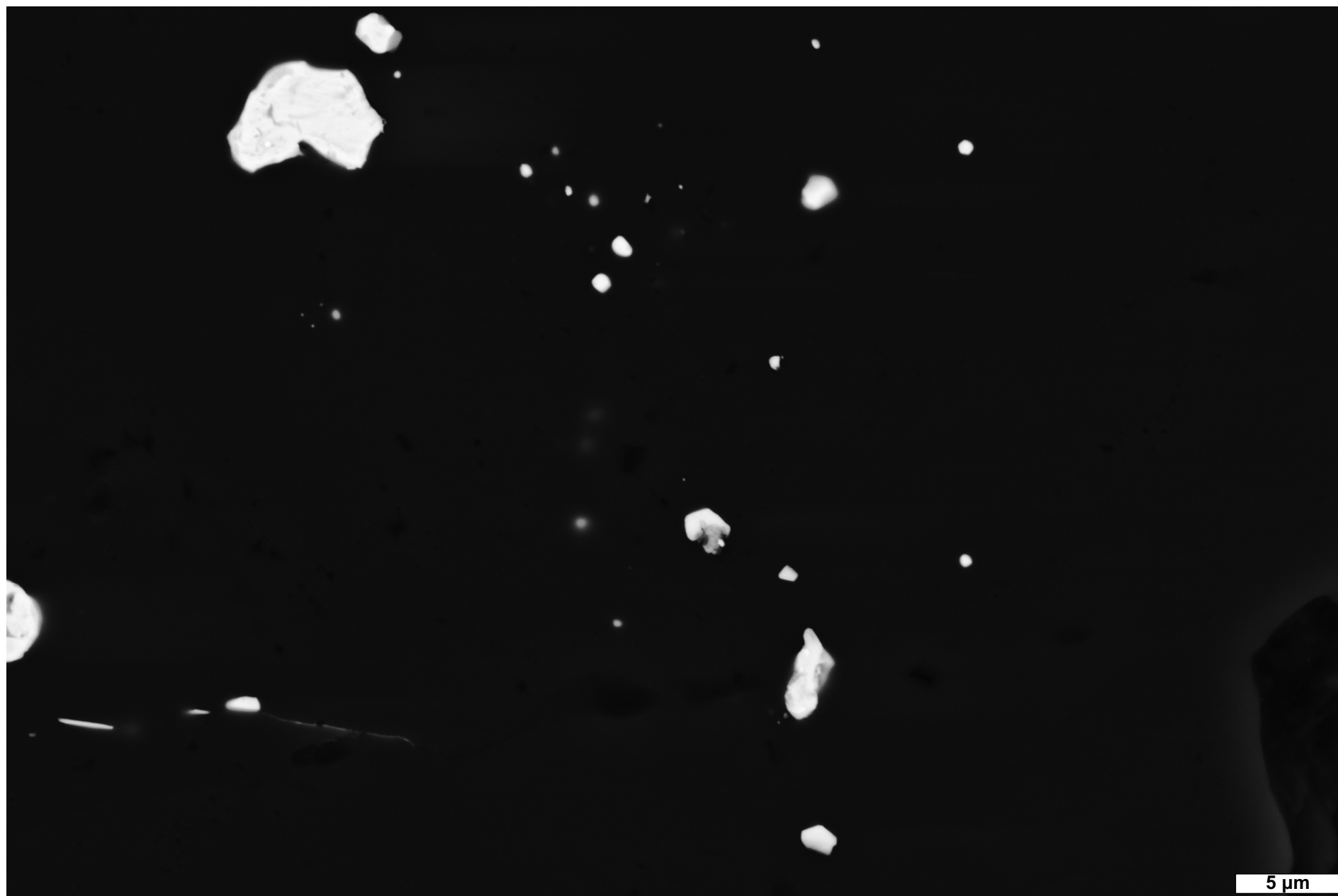
Sup. Fig. 2 continuation

Assemblage 6

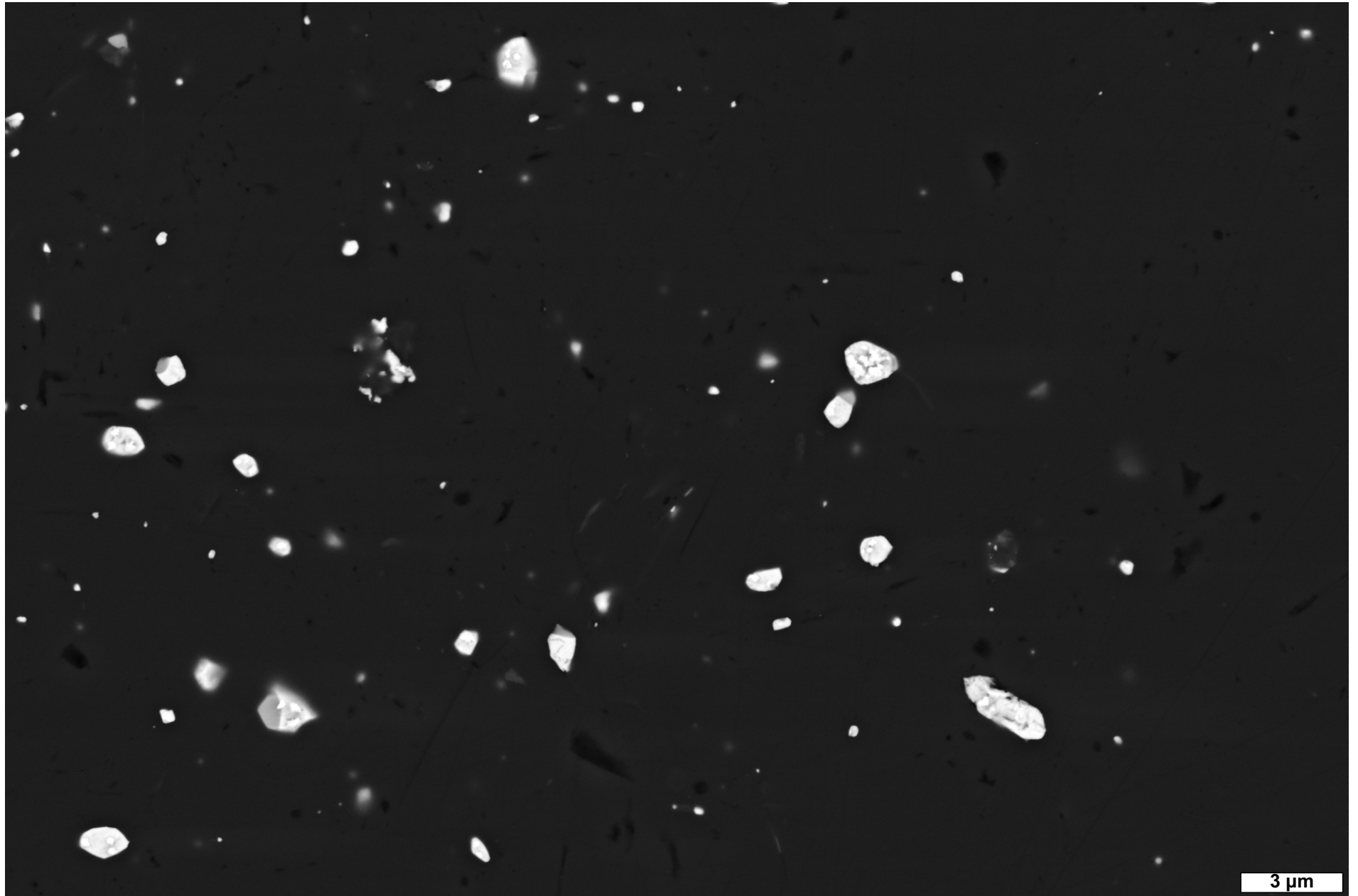


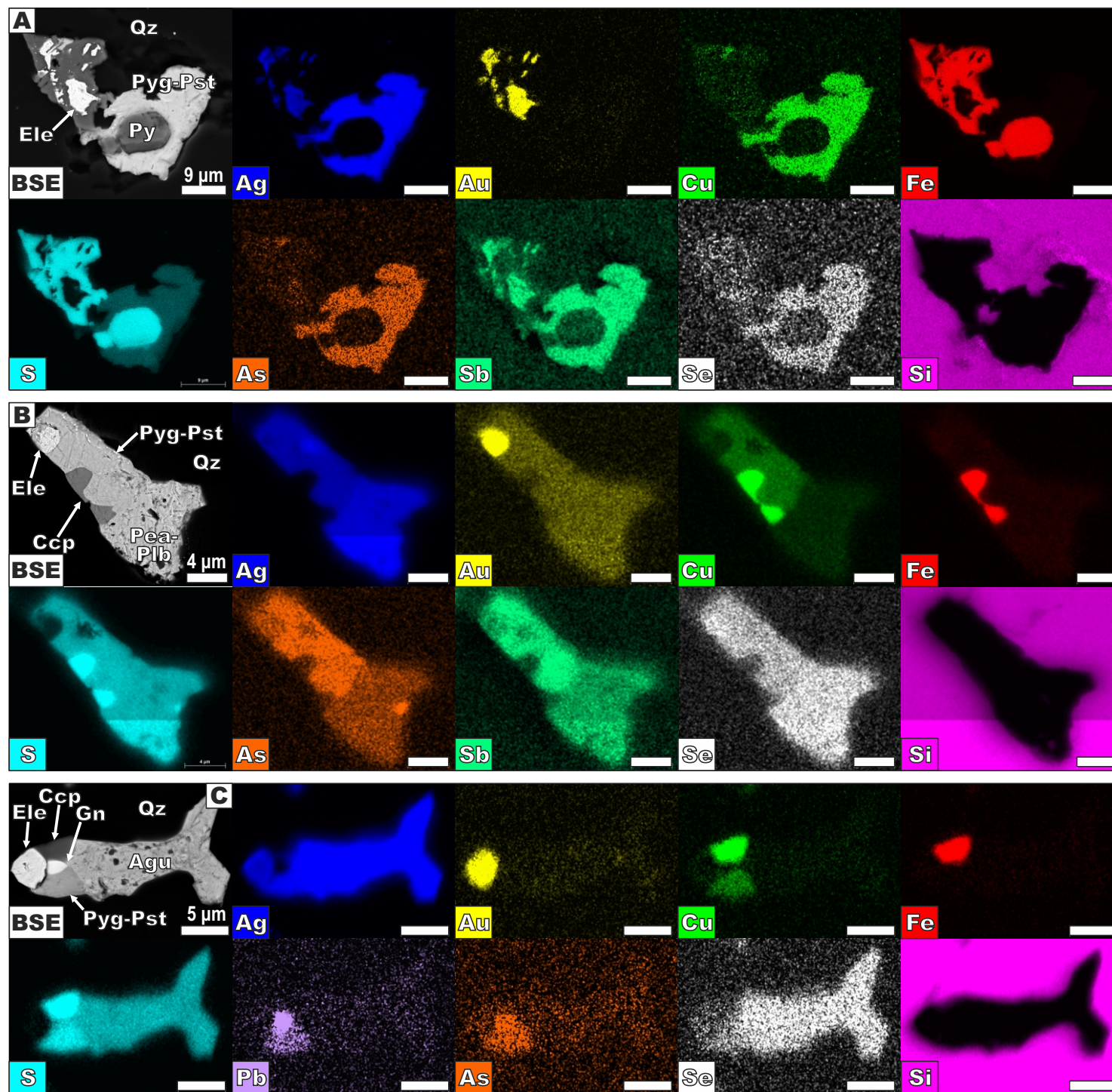
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Assemblage 7

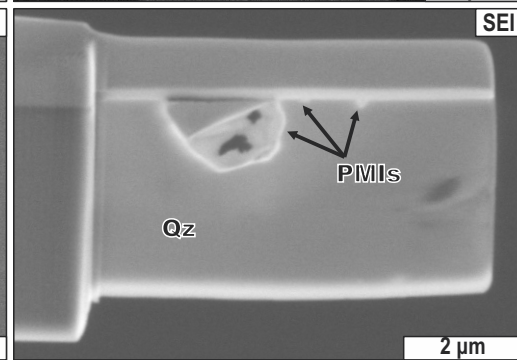
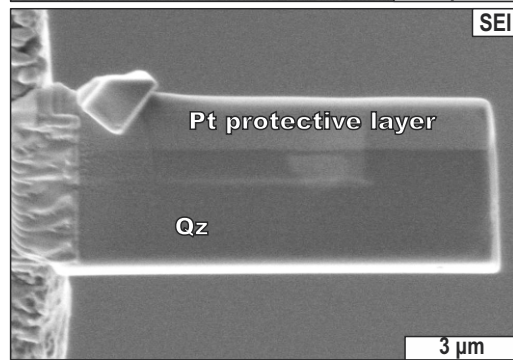
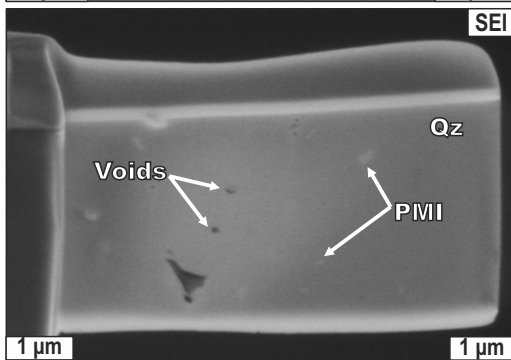
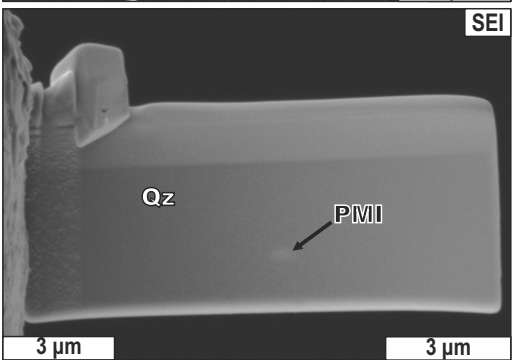
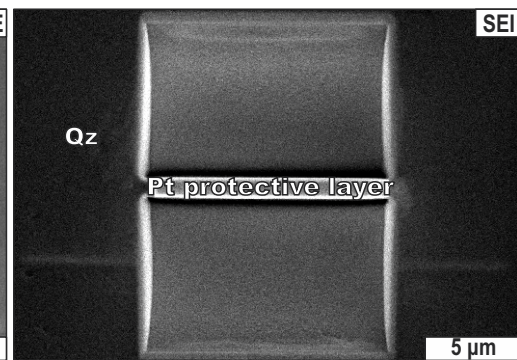
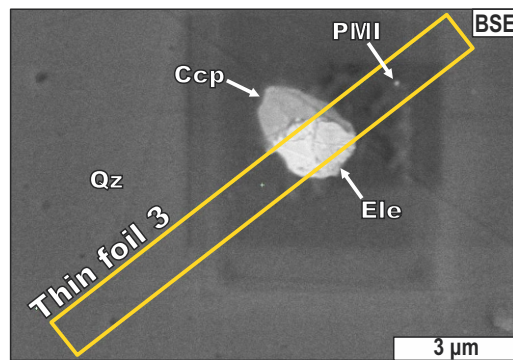
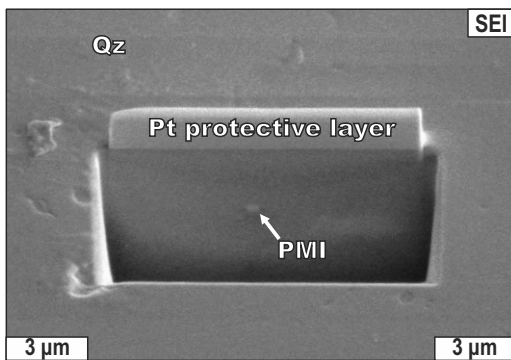
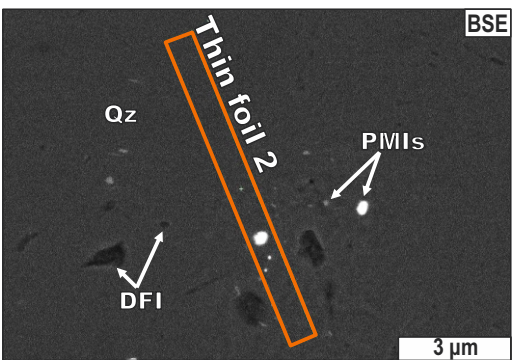
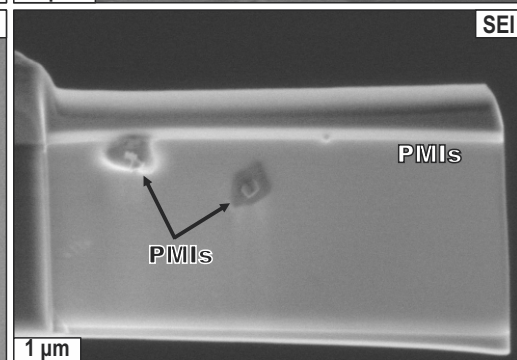
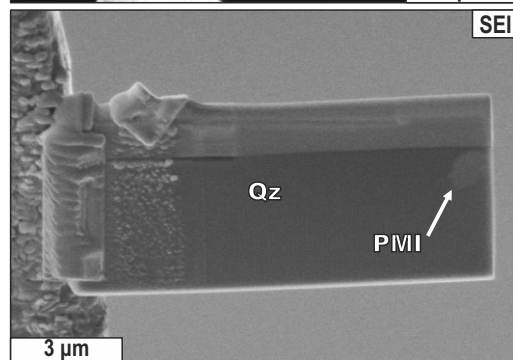
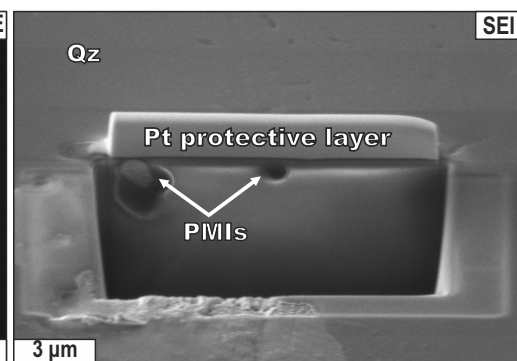
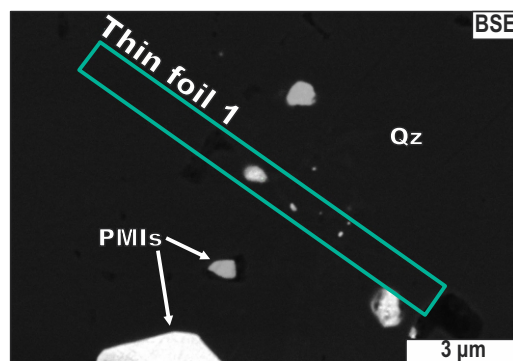
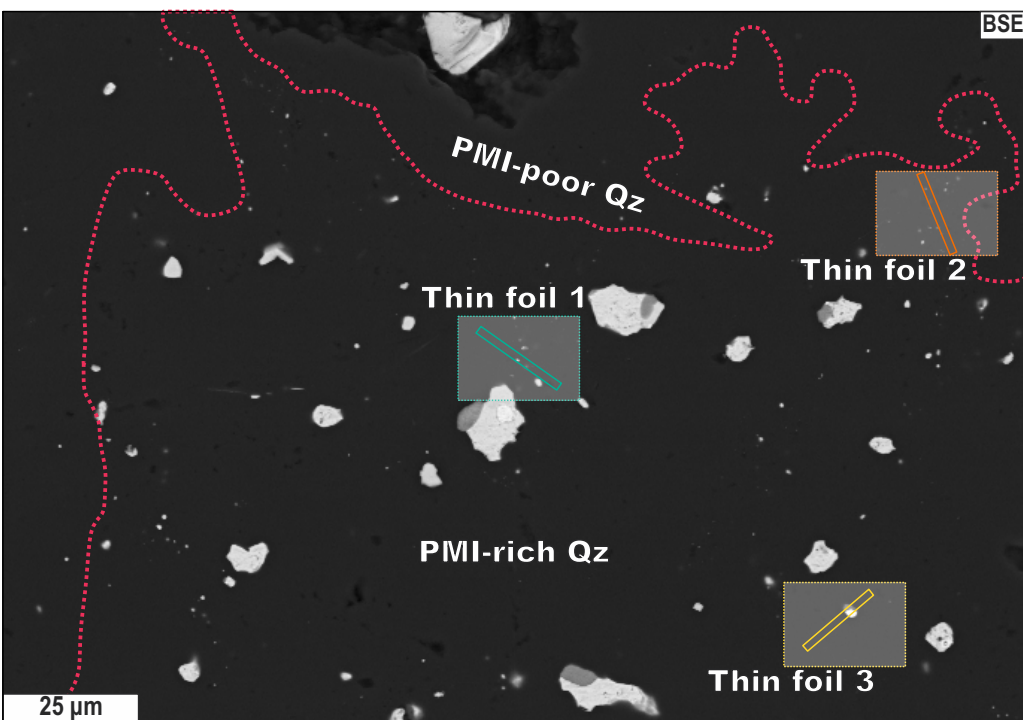


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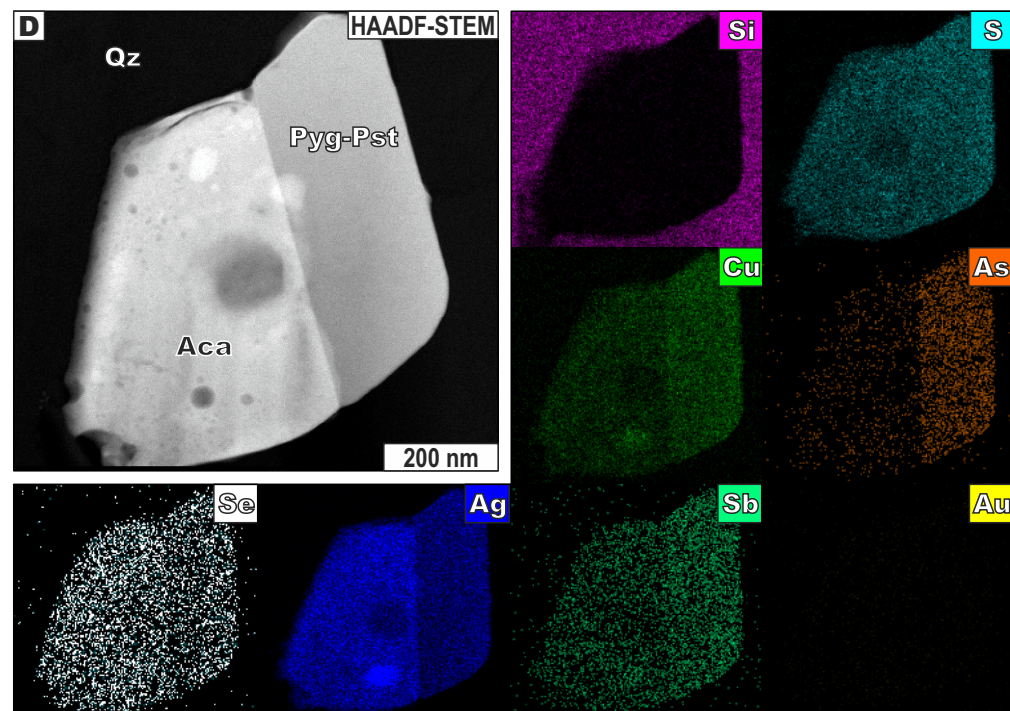
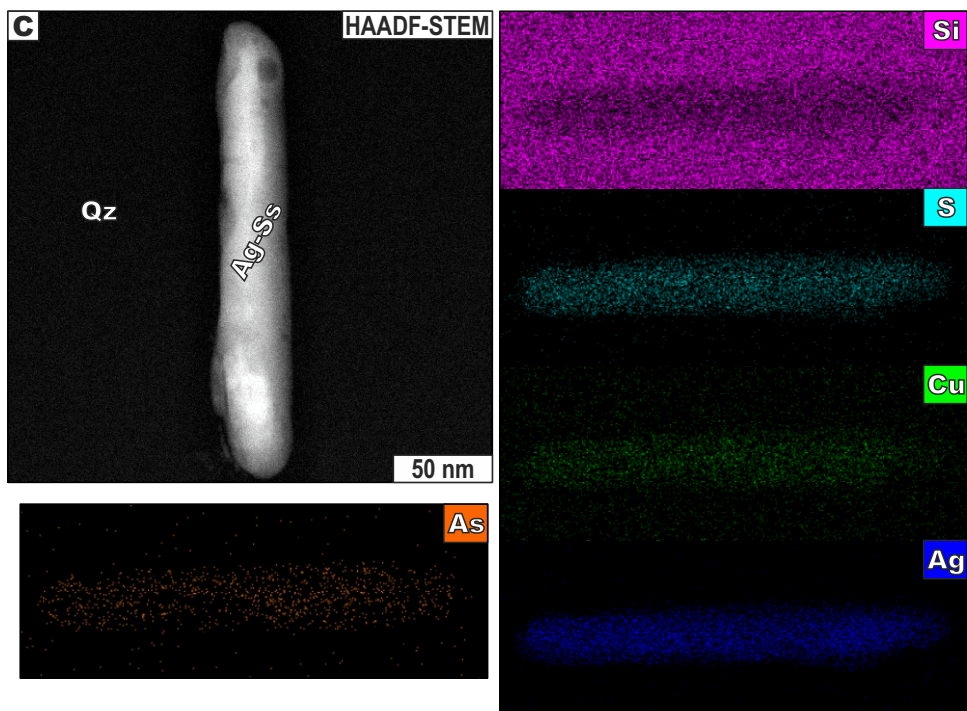
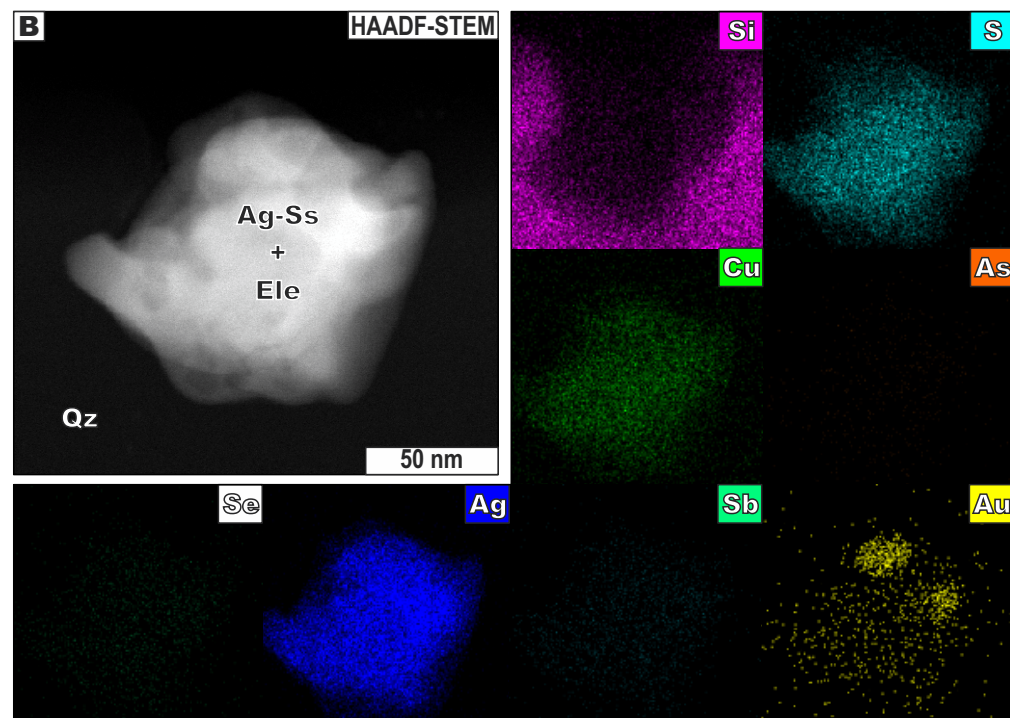
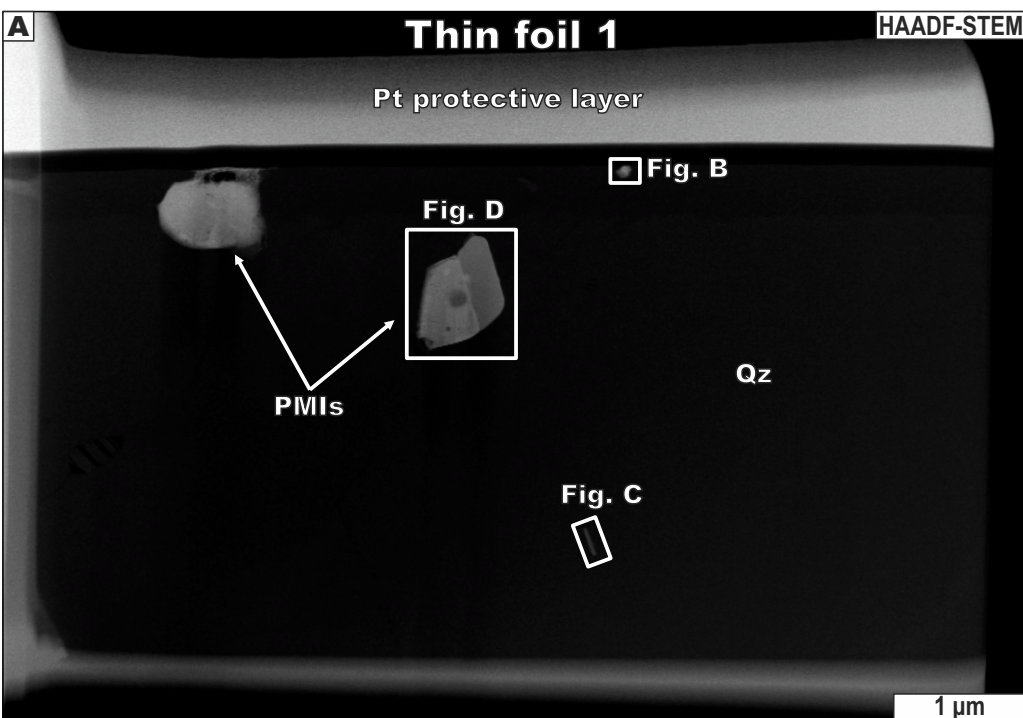




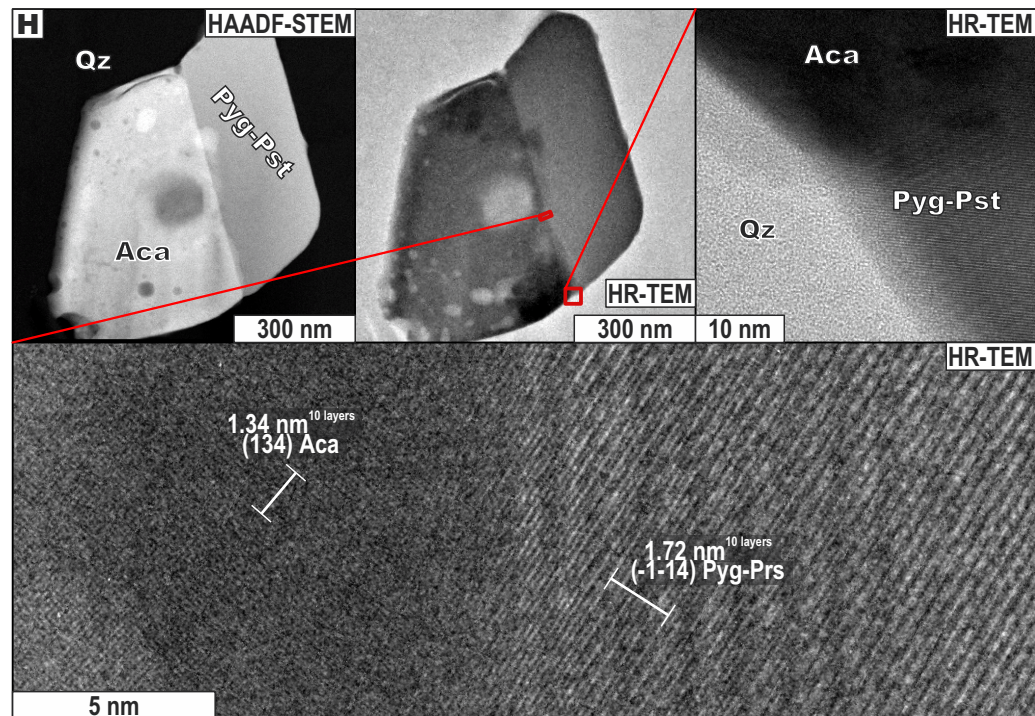
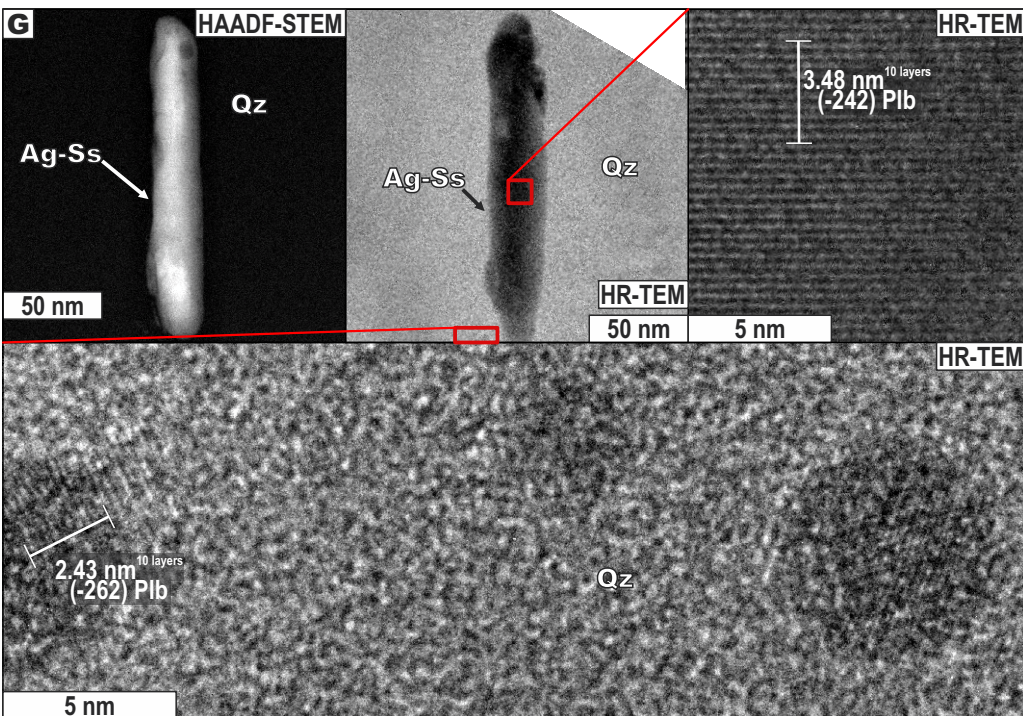
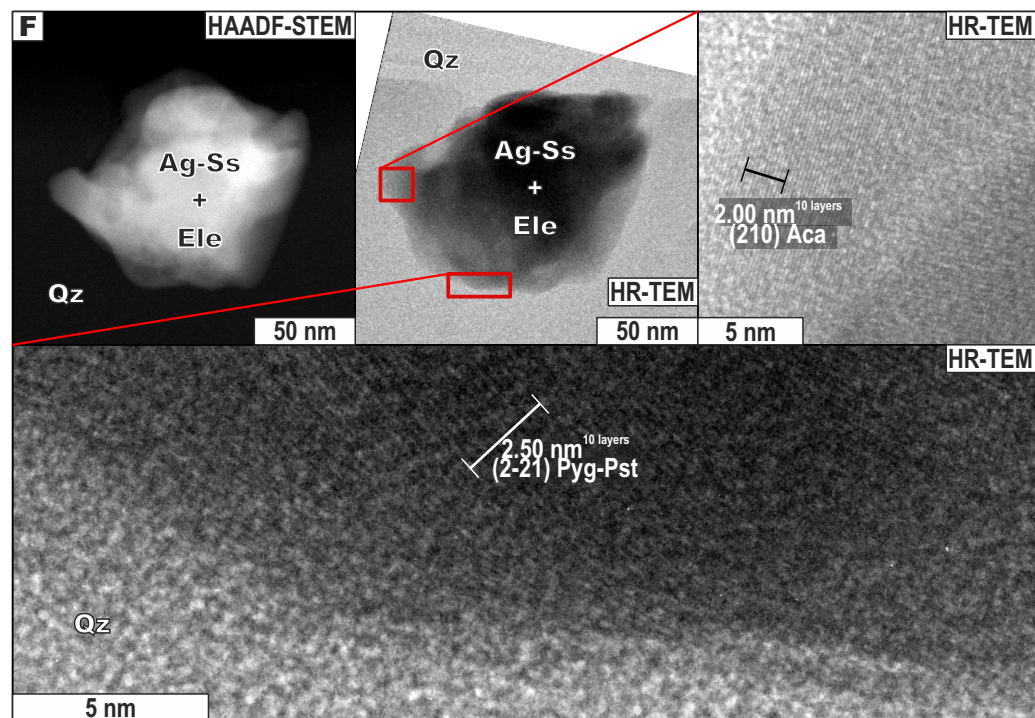
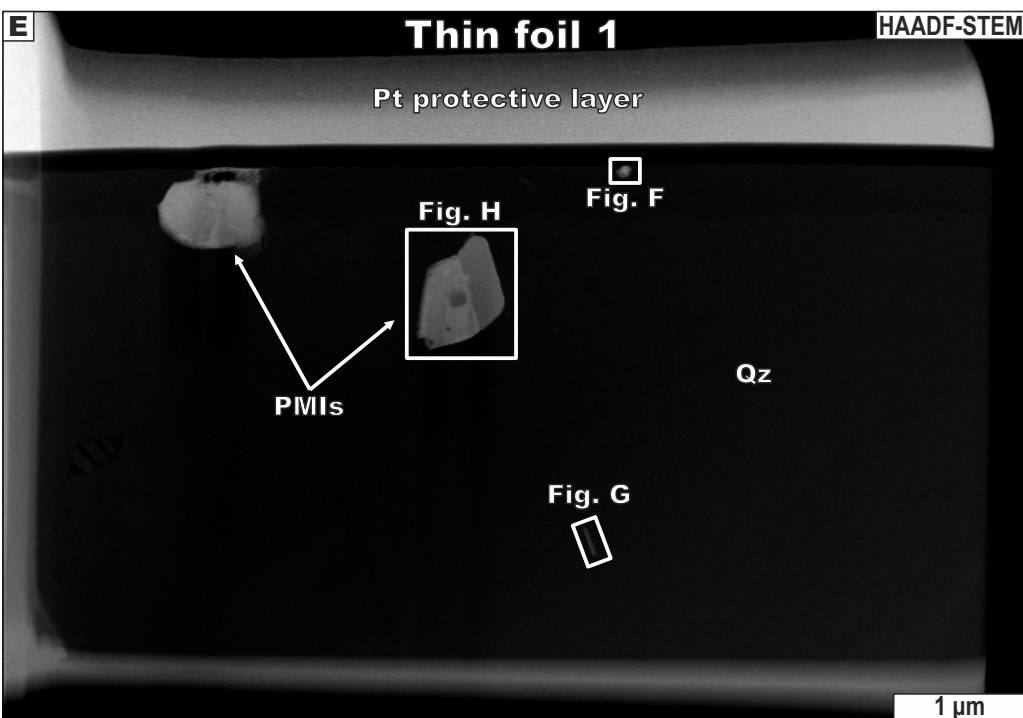
Supplementary Fig. 3. Panels A to C show scanning electron microscopy (SEM) energy-dispersive X-ray (EDX) compositional maps of some polymineral inclusions (PMI). Key: Agu = aguilarite, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Gn = galena, Pea = pearceite, Plb = polybasite, Prs = proustite, Py = pyrite, Pyg = pyrargyrite, Qz = quartz.



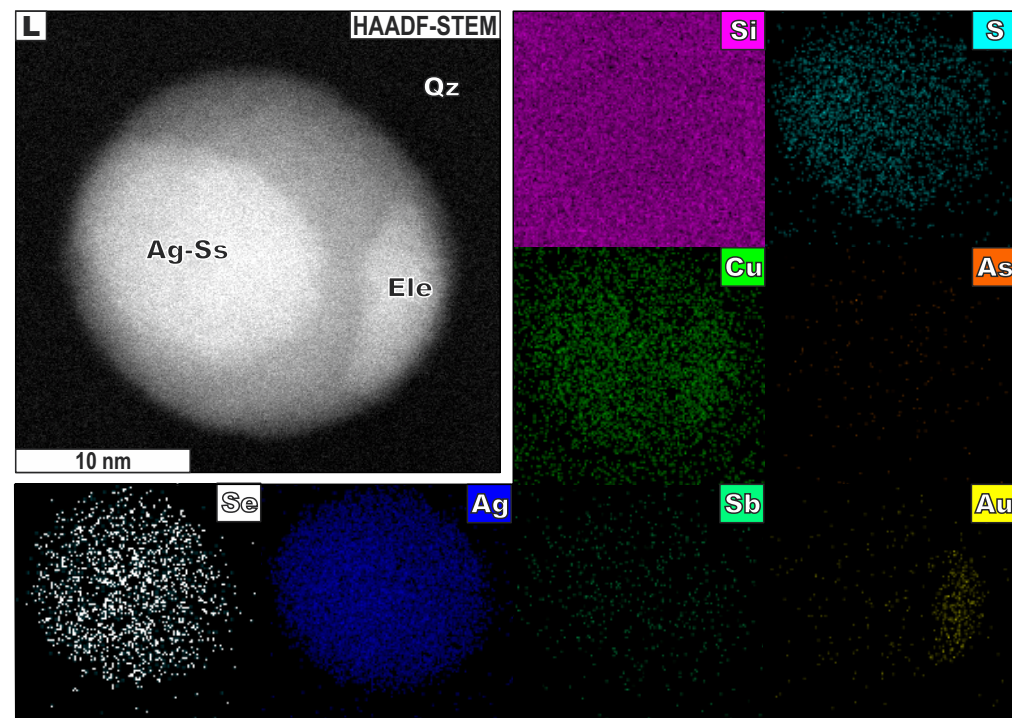
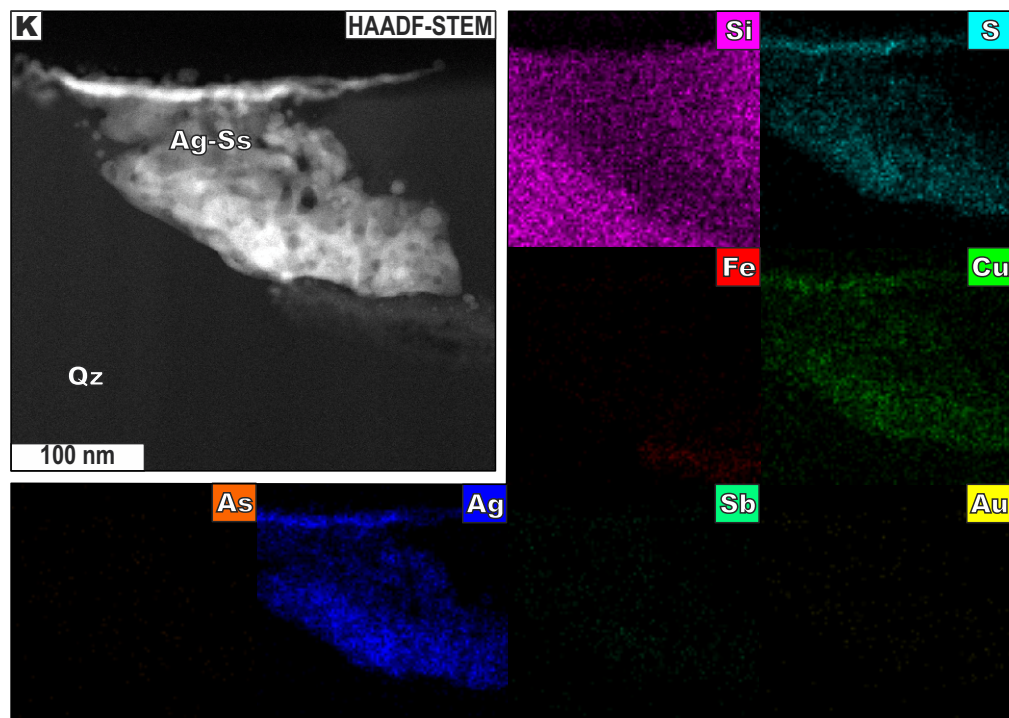
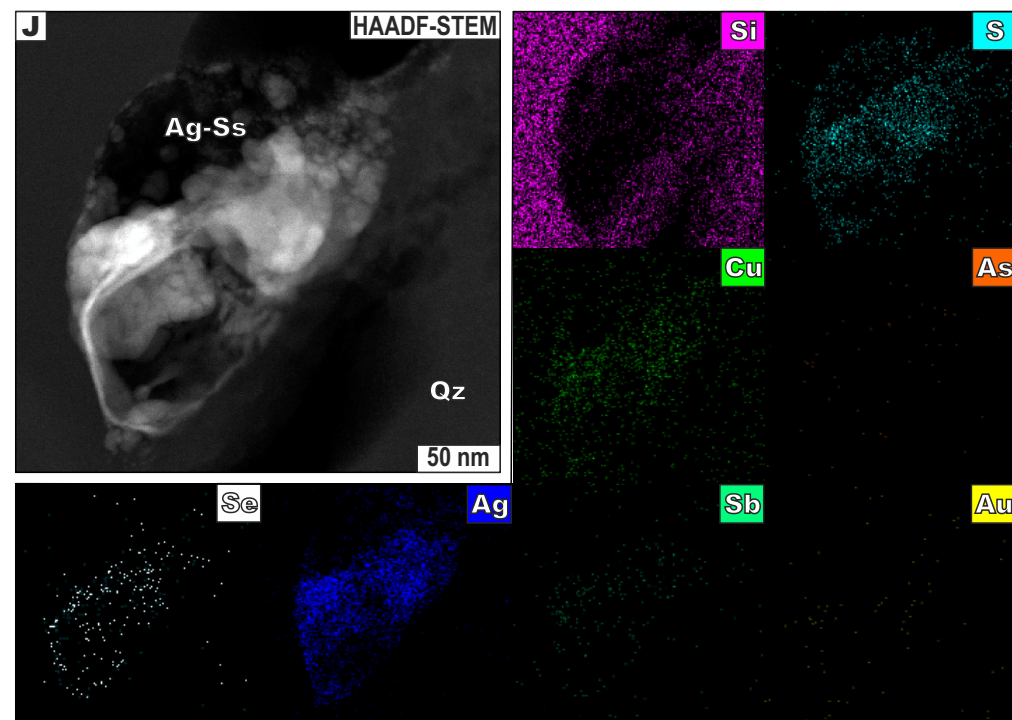
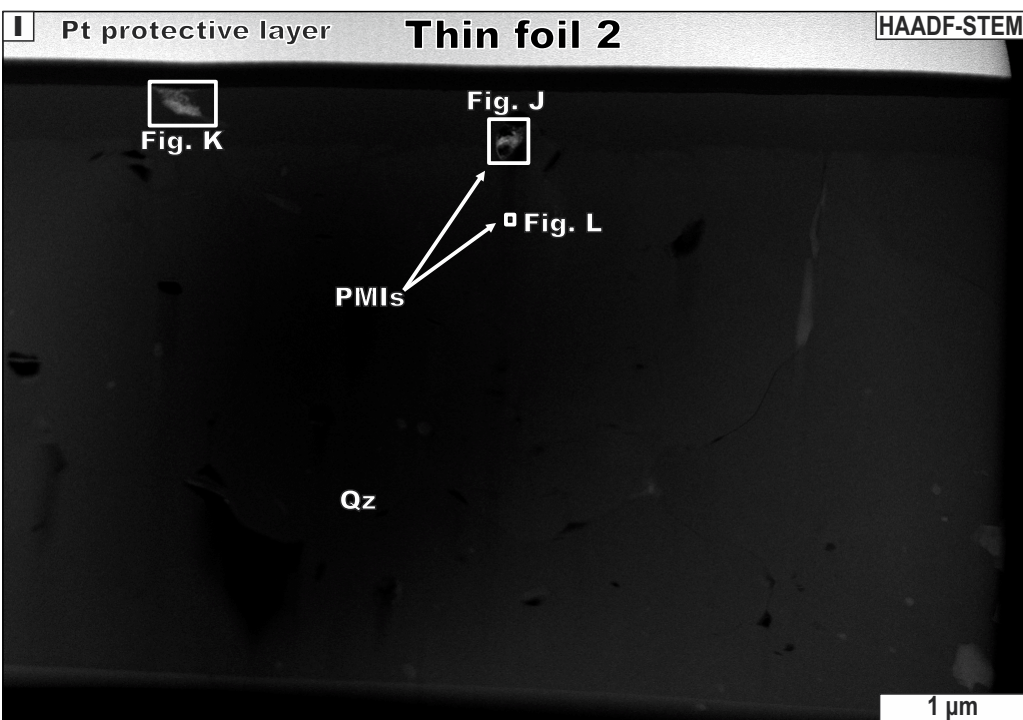
Supplementary Fig. 4. Back-scattered electron (BSE) and secondary electron (SEI) images showing the location and preparation process of the studied thin foils (assemblage 5). See small voids in thin foil 2 that could represent decrepitated fluid inclusions. Key: Ccp = chalcopyrite, Ele = electrum, PMI = polyminal inclusion, Qz = quartz.



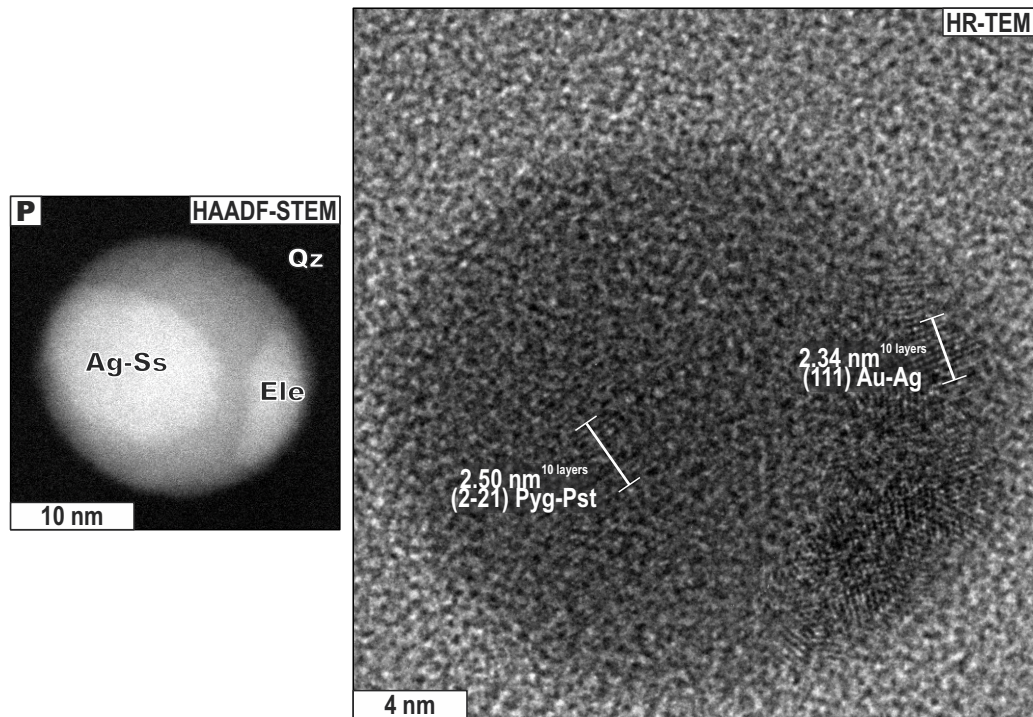
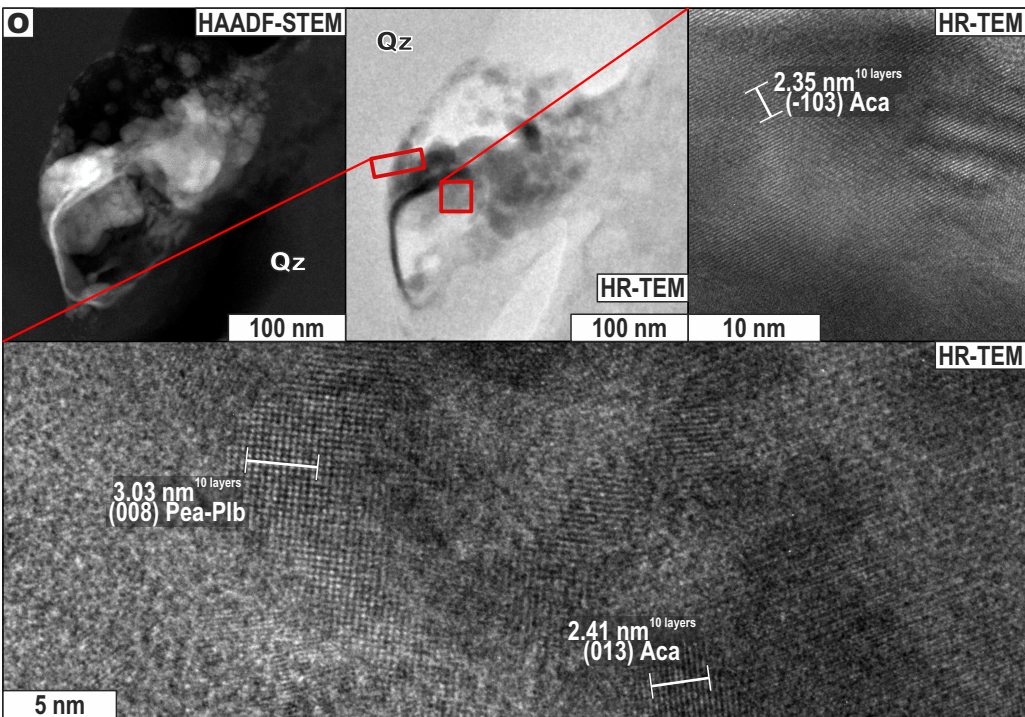
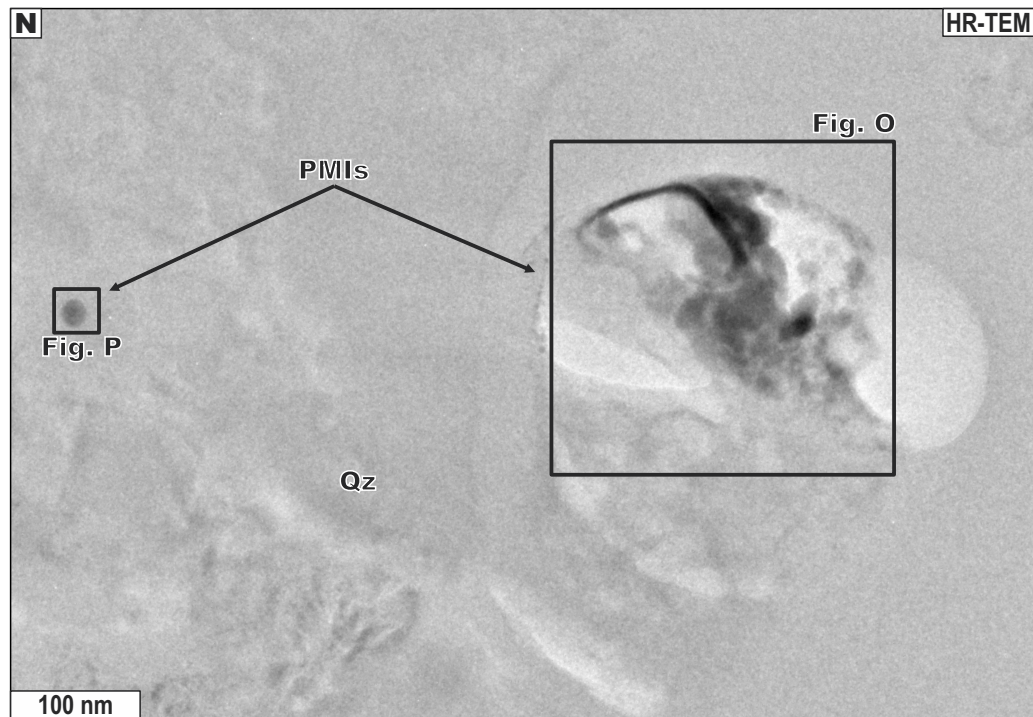
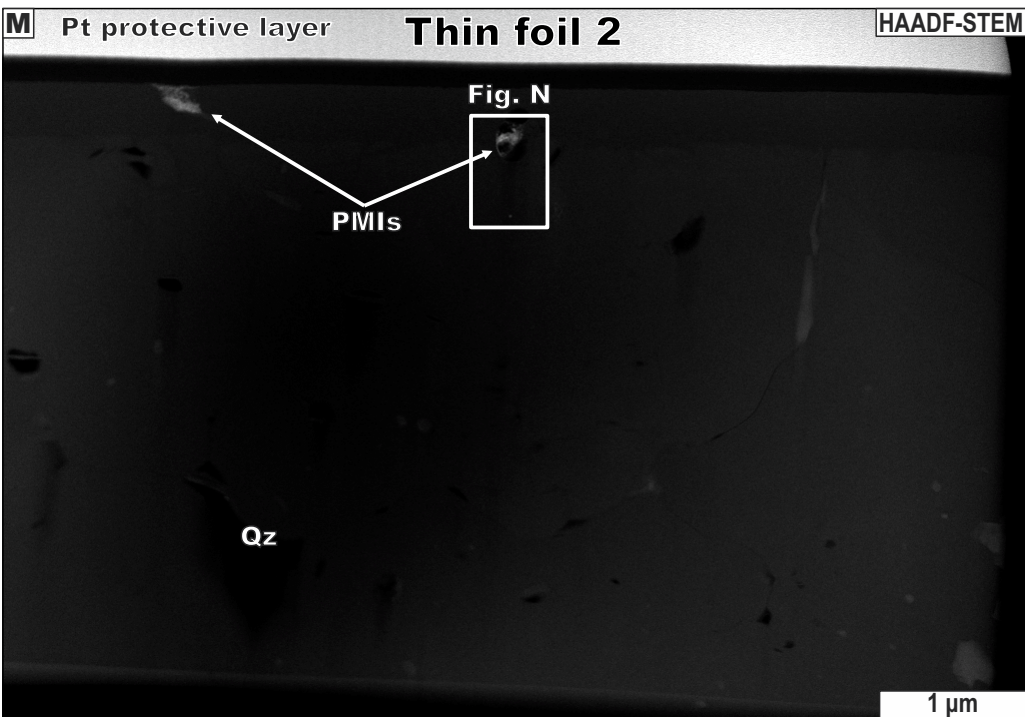
Supplementary. Fig. 5. A. High-angle annular dark-field (HAADF) image of thin foil 1. B-D. Scanning transmission electron microscopy (STEM) HAADF images and STEM compositional maps of polymineral inclusions (PMI) from thin foil 1. Key: Aca = acanthite, Ag-Ss = Ag sulfosalt, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Pea = pearceite, Plb = polybasite, Prs = proustite, Pyg = pyrrargyrite, Qz = quartz.



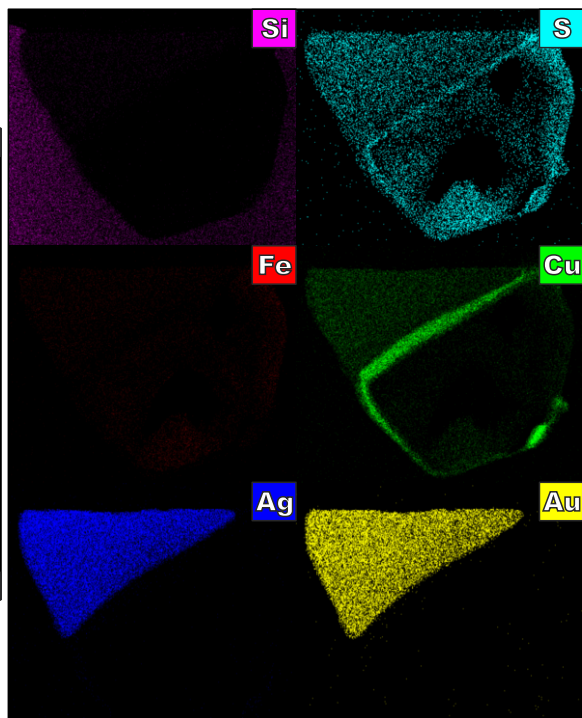
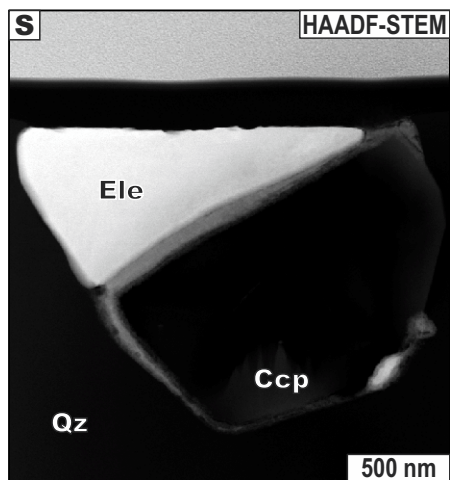
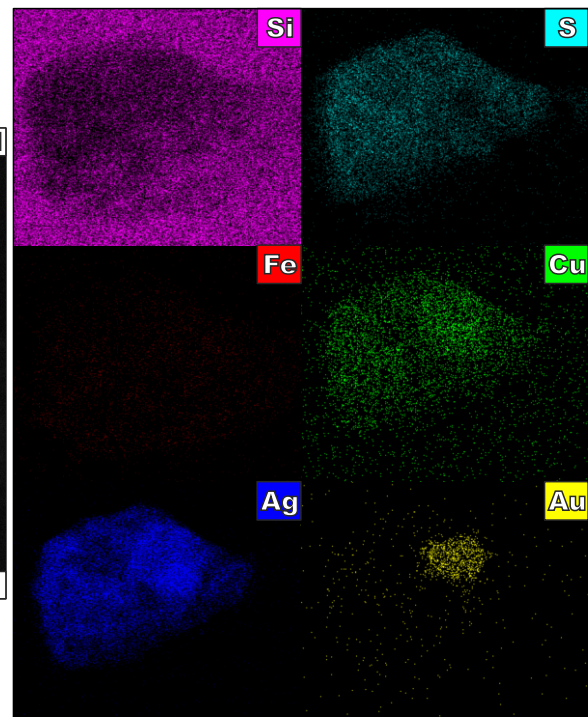
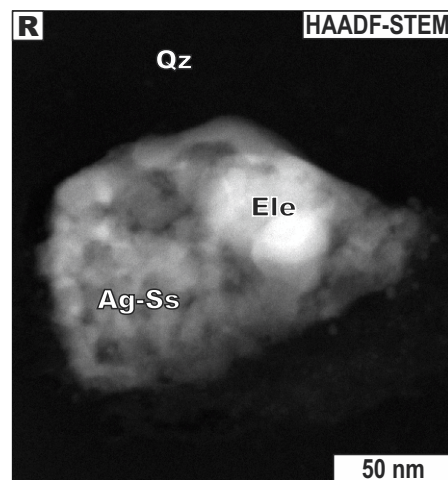
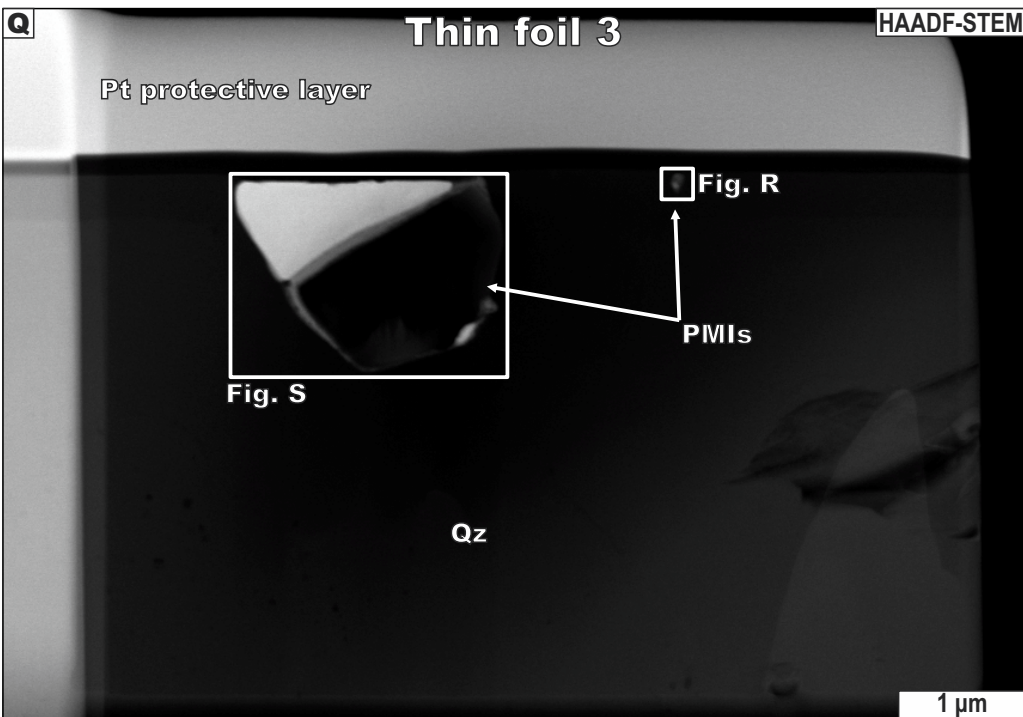
Supplementary Fig. 5. E. High-angle annular dark-field (HAADF) image of thin foil 1. F-H. Scanning transmission electron microscopy (STEM) HAADF images and high-resolution TEM images of polymineral inclusions (PMI) from thin foil 1. Key: Aca = acanthite, Ag-Ss = Ag sulfosalt, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Pea = pearceite, Plb = polybasite, Prs = proustite, Pyg = pyrrargyrite, Qz = quartz.



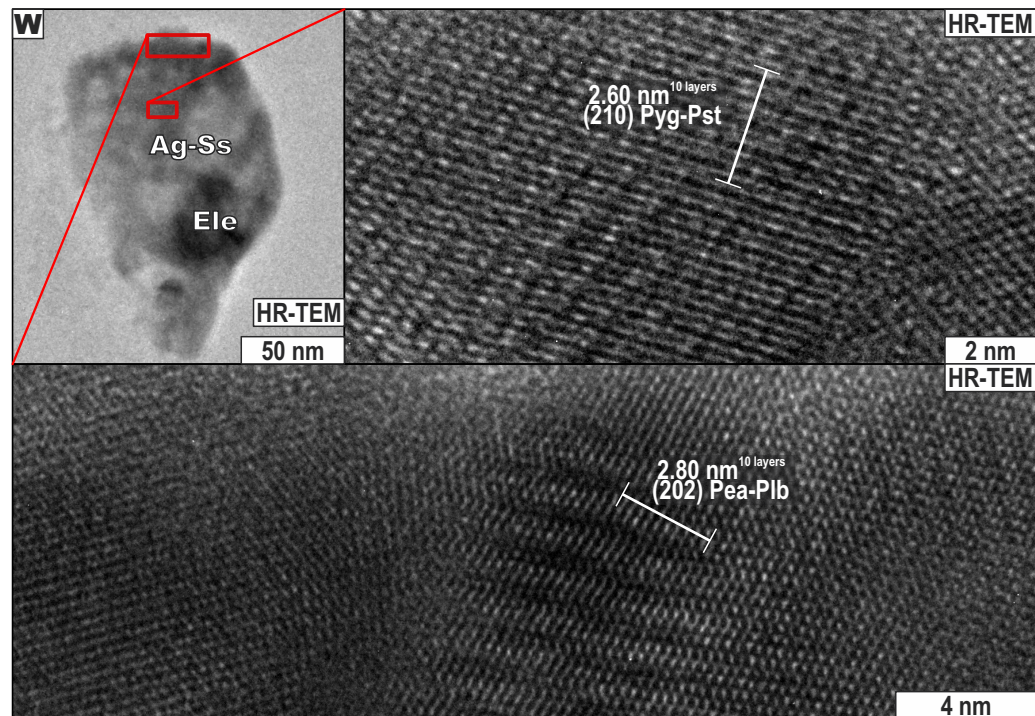
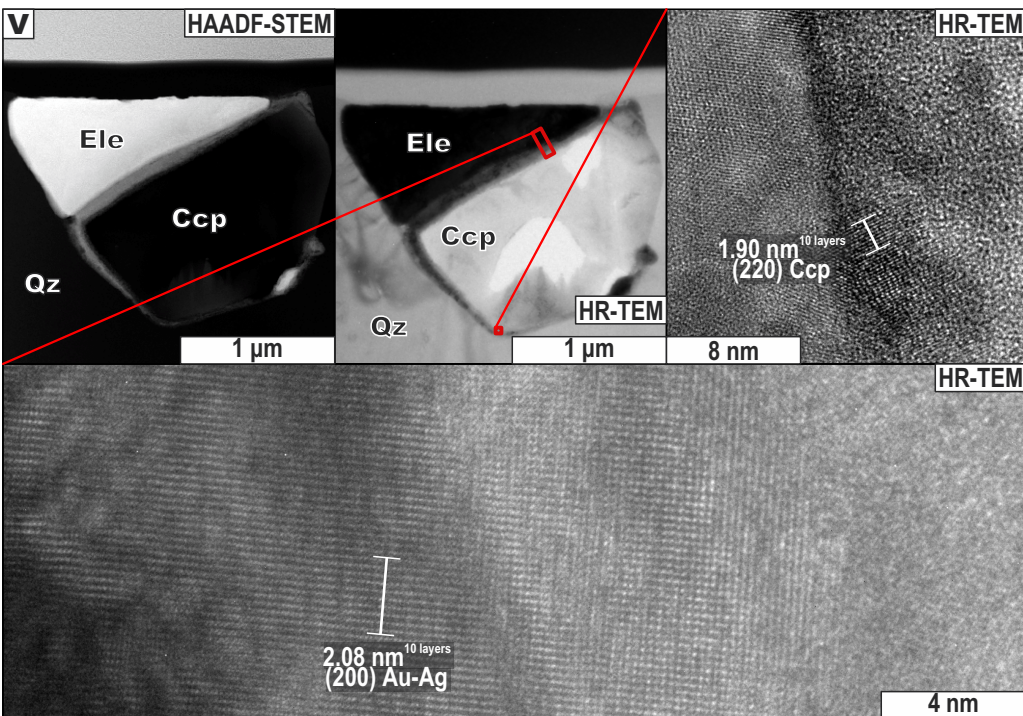
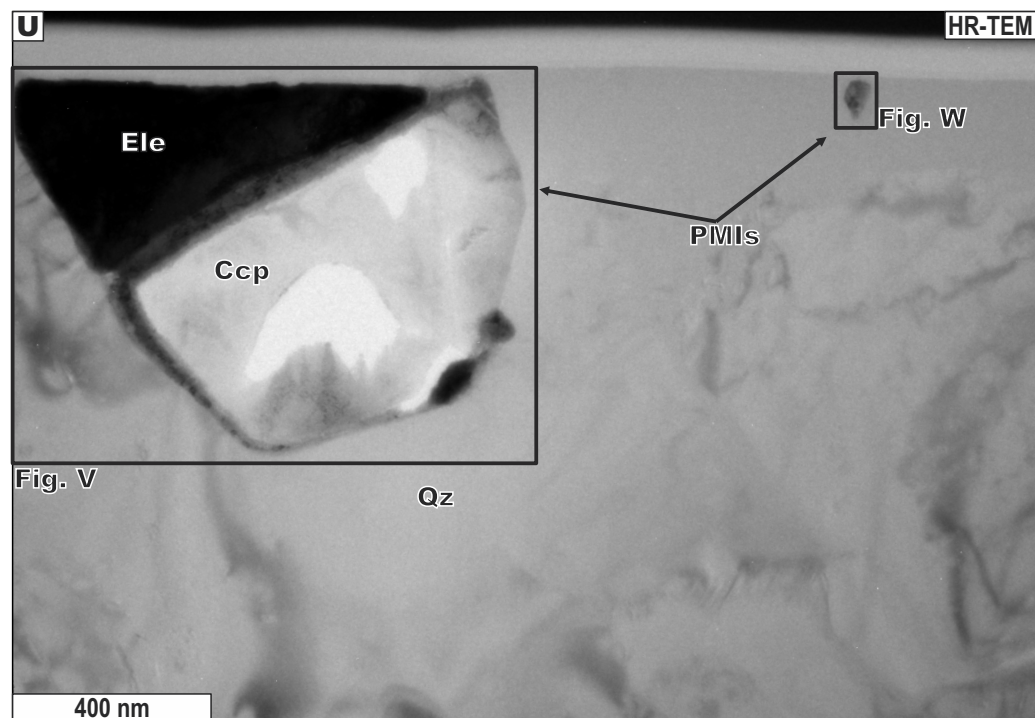
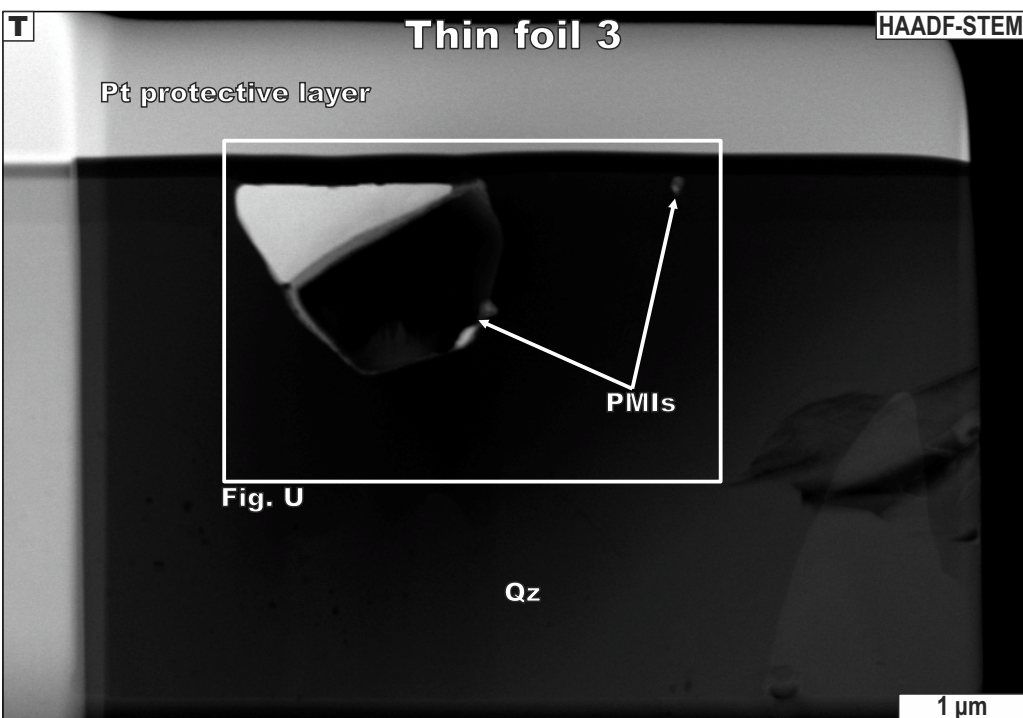
Supplementary Fig. 5. I. High-angle annular dark-field (HAADF) image of thin foil 2. J-L. Scanning transmission electron microscopy (STEM) HAADF images and STEM compositional maps of polymineral inclusions (PMI) from thin foil 2. Key: Aca = acanthite, Ag-Ss = Ag sulfosalt, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Pea = pearceite, Plb = polybasite, Prs = proustite, Pyg = pyrargyrite, Qz = quartz.



Supplementary Fig. 5. M. High-angle annular dark-field (HAADF) image of thin foil 2. N-P. Scanning transmission electron microscopy (STEM) HAADF images and high-resolution TEM images of polymineral inclusions (PMI) from thin foil 2. Key: Aca = acanthite, Ag-Ss = Ag sulfosalt, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Pea = pearceite, Plb = polybasite, Prs = proustite, Pyg = pyrrargyrite, Qz = quartz.



Supplementary Fig. 5. Q. High-angle annular dark-field (HAADF) image of thin foil 3. R-S. Scanning transmission electron microscopy (STEM) HAADF images and STEM compositional maps of polymineral inclusions (PMI) from thin foil 3. Key: Aca = acanthite, Ag-Ss = Ag sulfosalt, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Pea = pearceite, Plb = polybasite, Prs = proustite, Pyg = pyrargyrite, Qz = quartz.



Supplementary Fig. 5. T. High-angle annular dark-field (HAADF) image of thin foil 3. U-W. Scanning transmission electron microscopy (STEM) HAADF images and high-resolution TEM images of polymineral inclusions (PMI) from thin foil 3. Key: Aca = acanthite, Ag-Ss = Ag sulfosalt, Ccp = chalcopyrite, Ele = electrum (Au-Ag alloy), Pea = pearceite, Plb = polybasite, Prs = proustite, Pyg = pyrrargyrite, Qz = quartz.