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# LM–19 lawsonite: a potential reference material for *in situ* oxygen isotope determination in lawsonite by ion microprobe

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## Supplementary Figures

This file includes: Figures S1–S5

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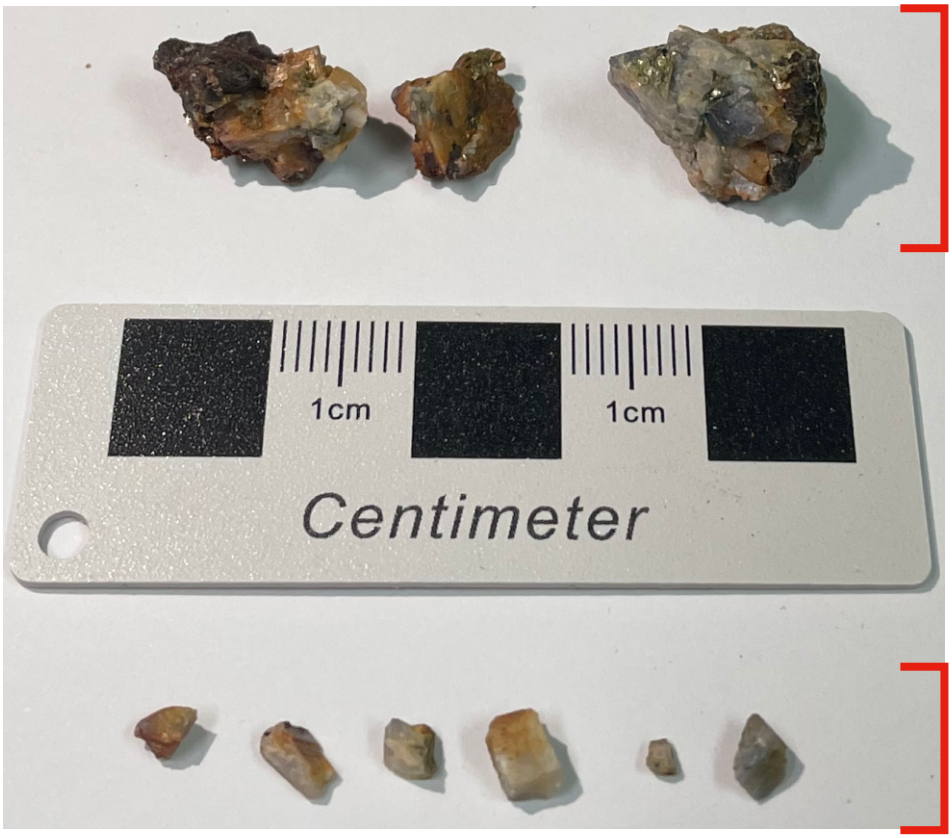


**Figure S1.** Remnants of the lawsonite-beraing rock specimen; pure LM-19 lawsonite fragments.

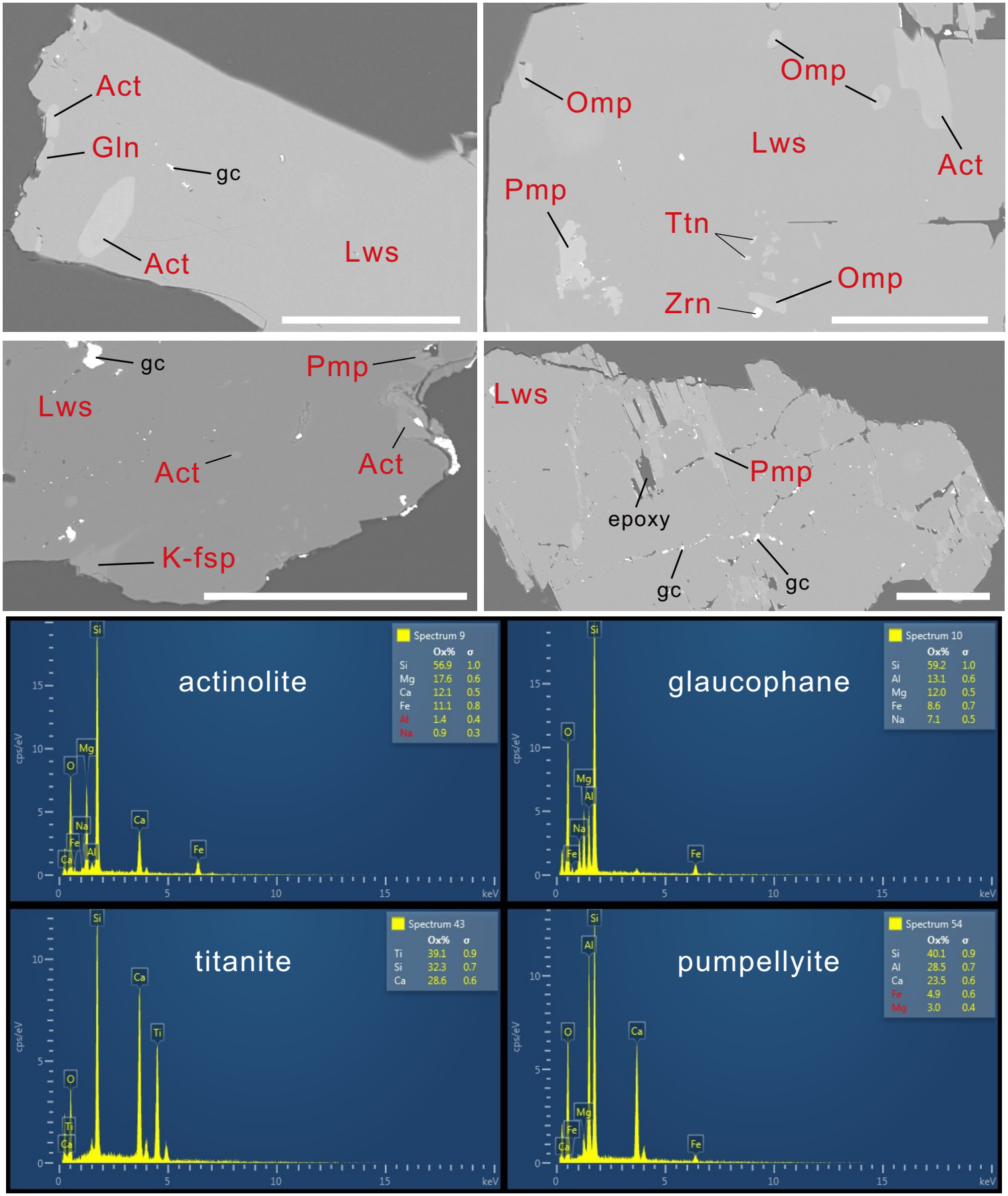


**Figure S2.** Representative BSE images and EDS spectra for inclusions, secondary minerals, and the host LM-19 lawsonite. Scale bars are 100 μm. Act - actinolite; Gln - glaucophane; Omp - omphacite; Pmp - pumpellyite; K-fsp - K-feldspar; Ttn - titanite; Zrn - zircon; Lws - lawsonite; gc - remains of gold coating.

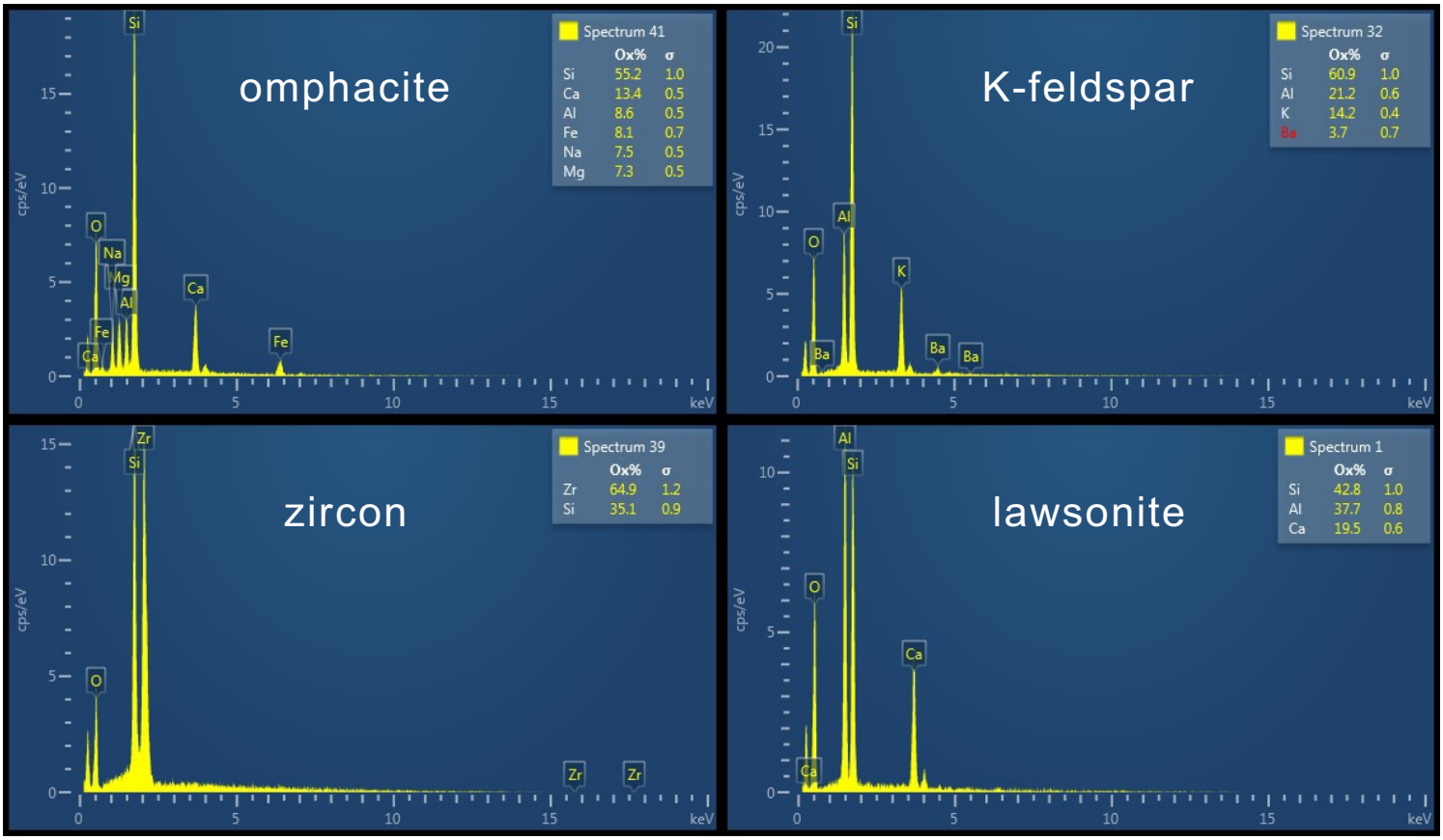


**Figure S2.** Continued.

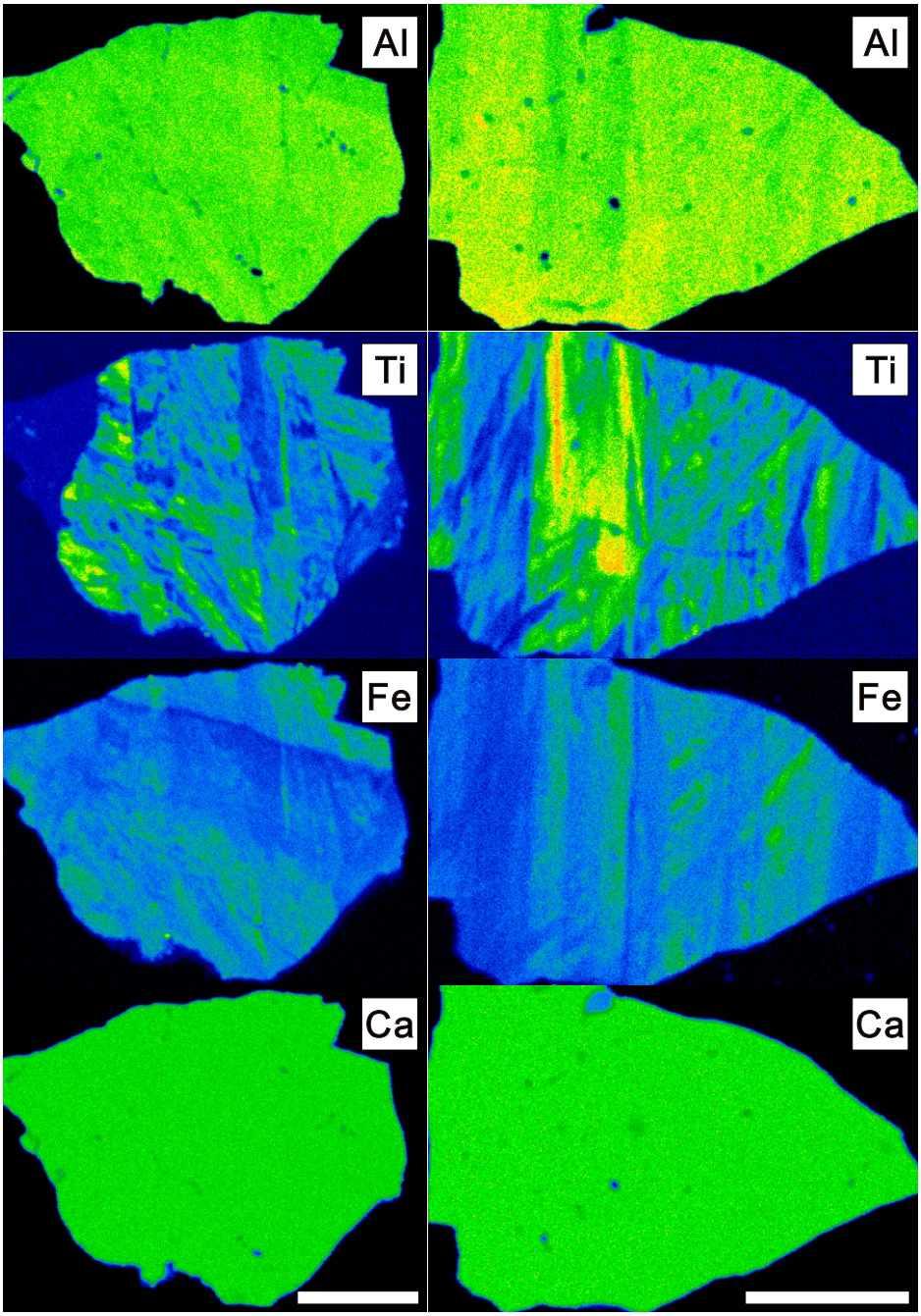


**Figure S3.** Al, Ti, Fe, and Ca qualitative X-ray maps for two additional LM-19 fragments that are not shown in Figure 4. Elemental contents increase from cold to warm colors. Scale bars are 200 μm.

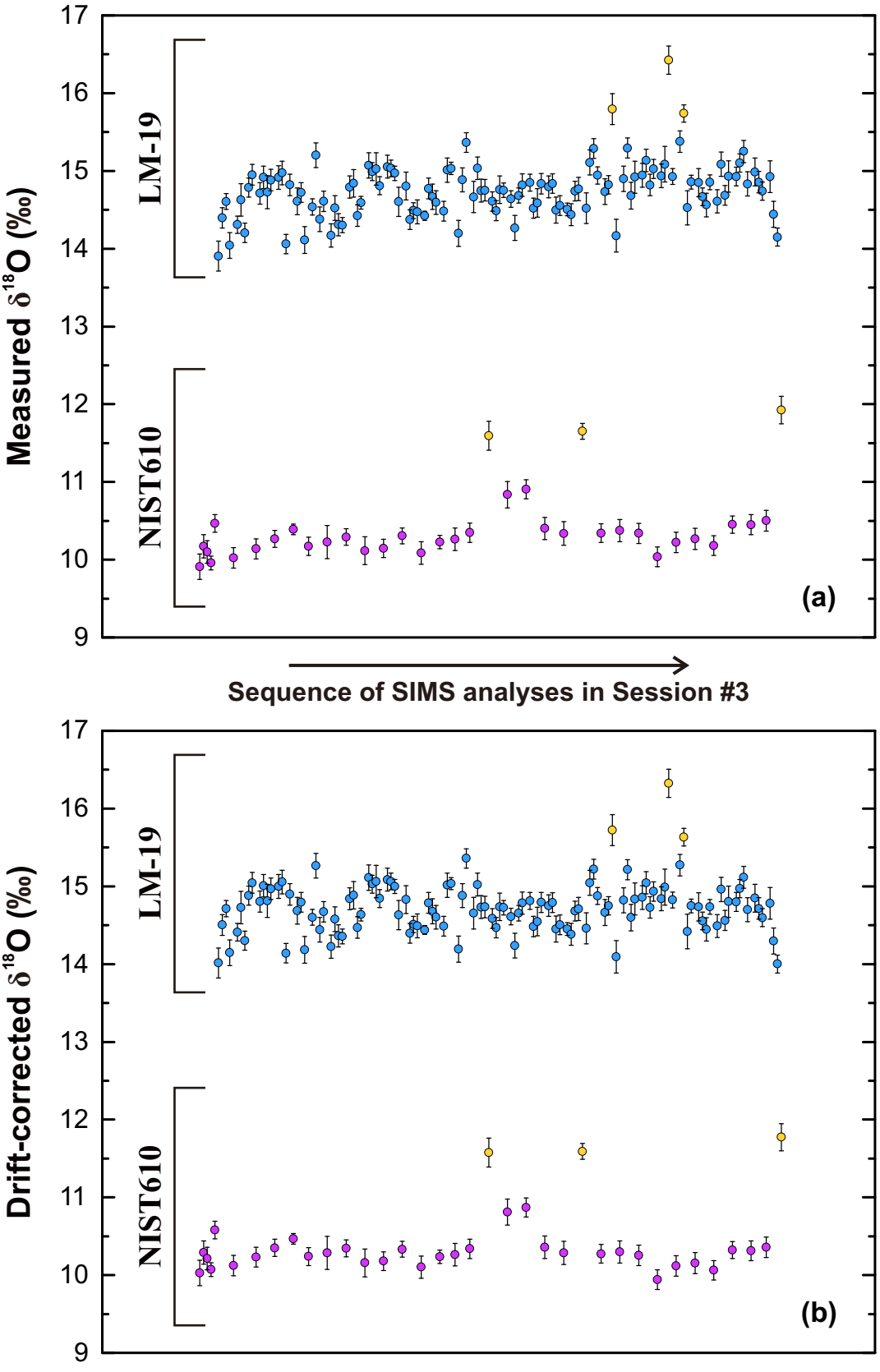


**Figure S4.** Plots showing temporal distribution of the SIMS oxygen isotopic analyses for LM-19 lawsonite and NIST610 in Session 3: (**a**) - measured $\delta^{18}O$ values; (**b**) - $\delta^{18}O$ values corrected for instrumental drift. Analyses with abnormally high $\delta^{18}O$ values are marked with yellow color. Error bars are 2SE.

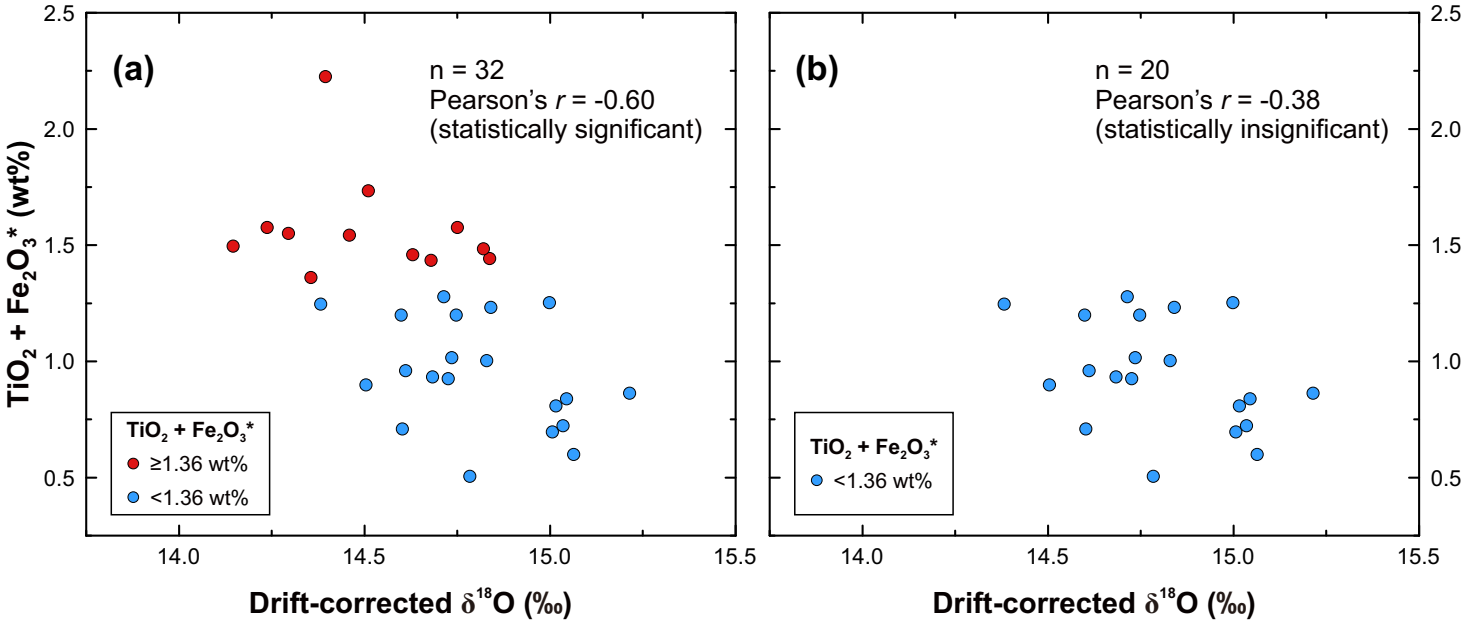


**Figure S5.** Correlation plots ($\delta^{18}O$ vs. $TiO_2 + Fe_2O_3$*) for the LM-19 lawsonite (see the Main text and Table S4 for details).