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Supplement of

Progressive veining during peridotite carbonation: insights from listvenites in Hole BT1B, Samail ophiolite (Oman)

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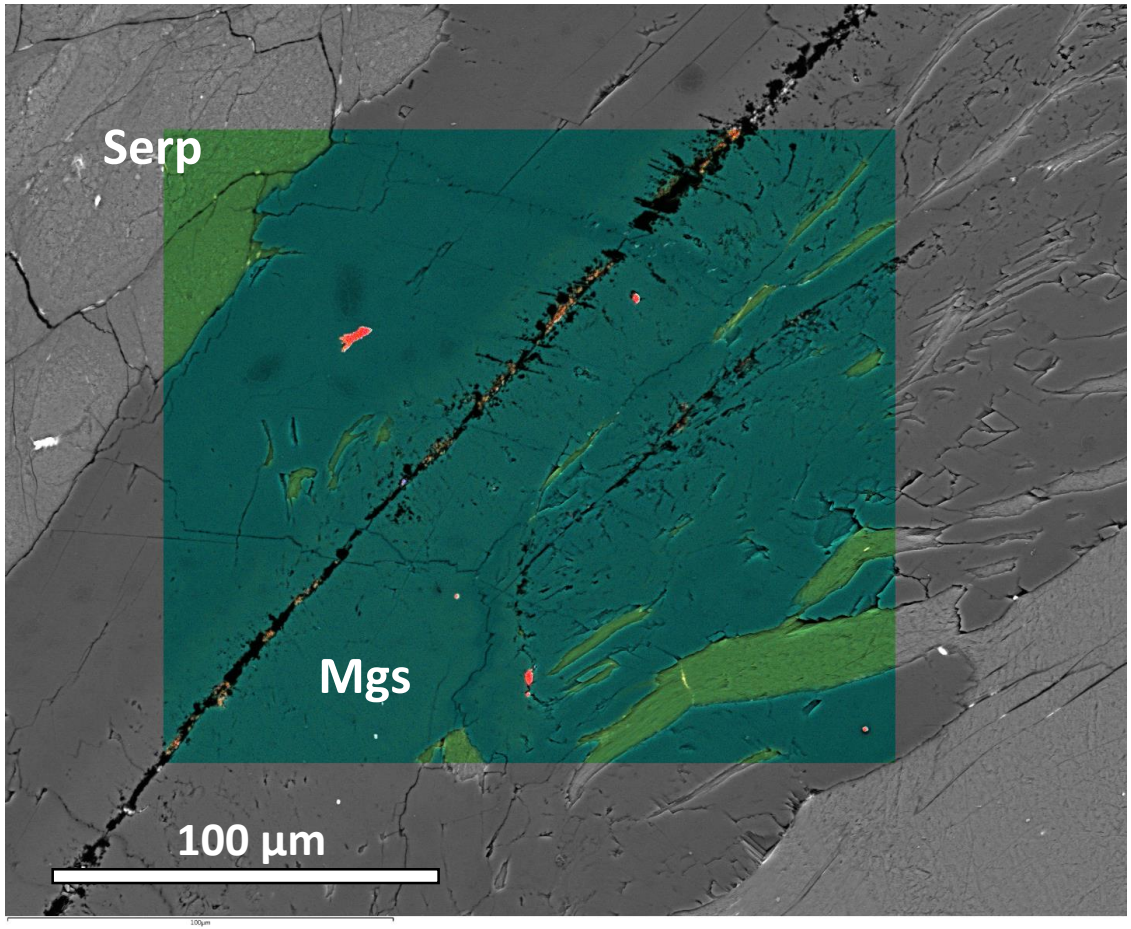

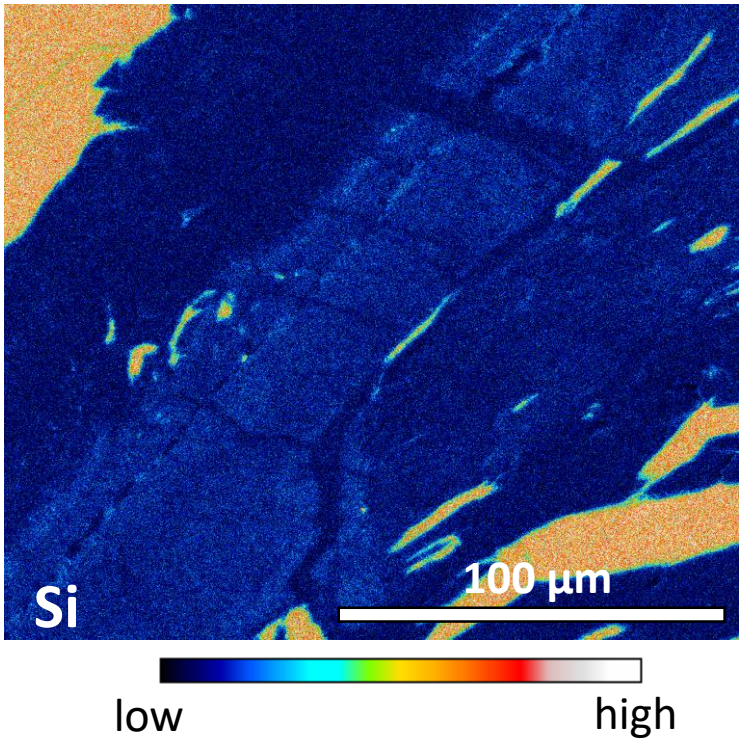

Fig. S1 *Composite-color EDX phase map superposed on BSE image of zoned sc2 magnesite vein in serpentinite, and corresponding EDX Si map. Fe-oxides or hydroxide occur along the median line, although partly dissolved or lost during sample preparation. Magnesite in the vein center has elevated Si-content, likely either due to serpentine or quartz nano-inclusions in magnesite in the vein center, similar to lc1 veins in listvenite. Thin magnesite veinlets cutting the vein at high angle are Si-free, as are the vein walls. Serpentine host inclusions in the vein are common. Sample BT1B_39-3_9-13*

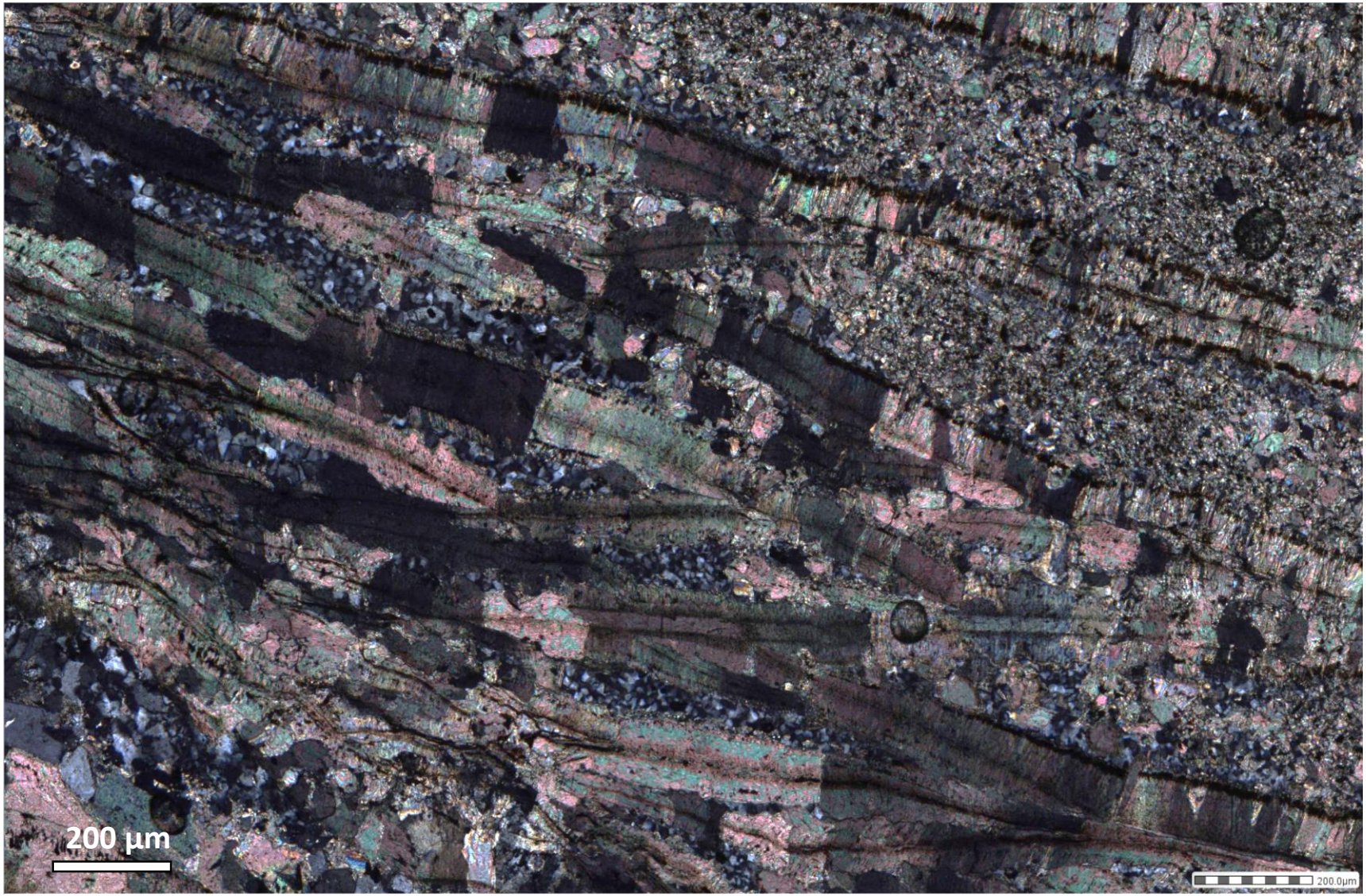

Fig. S2 *Photomicrograph of zoned lc1 magnesite veins in listvenite, with alternating fibrous and wide blocky vein habit. ViP xpol; sample BT1B_48-1_32-37.*

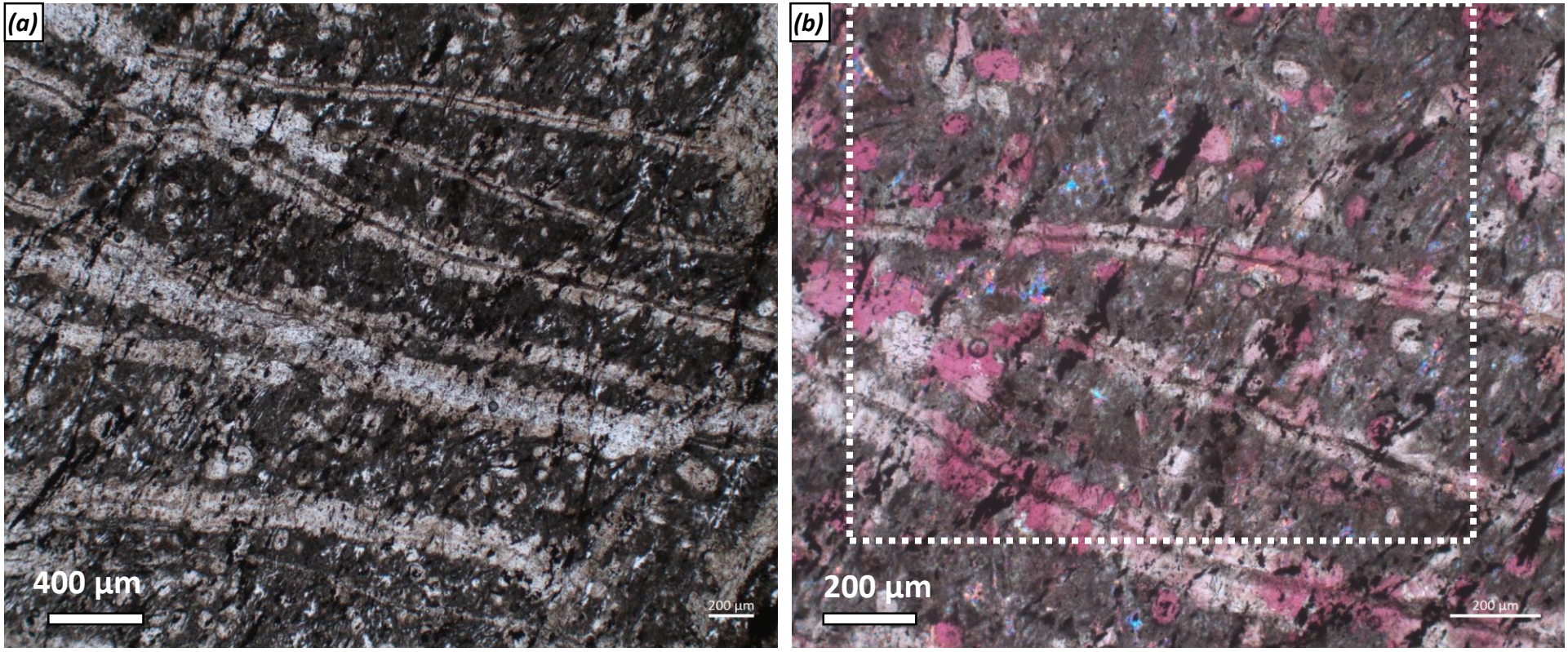

Fig. S3 Cross-cutting relations of zoned lc1 magnesite veins and Fe-oxides in listvenite. *The lc1 veins have a wide blocky vein habit. Photomicrographs are plain-polarized (a) and crossed polarized with 1 λ-plate (b); sample BT1B_48-1_32-37. The white-dotted frame in (b) marks the area shown in figure 8c.*

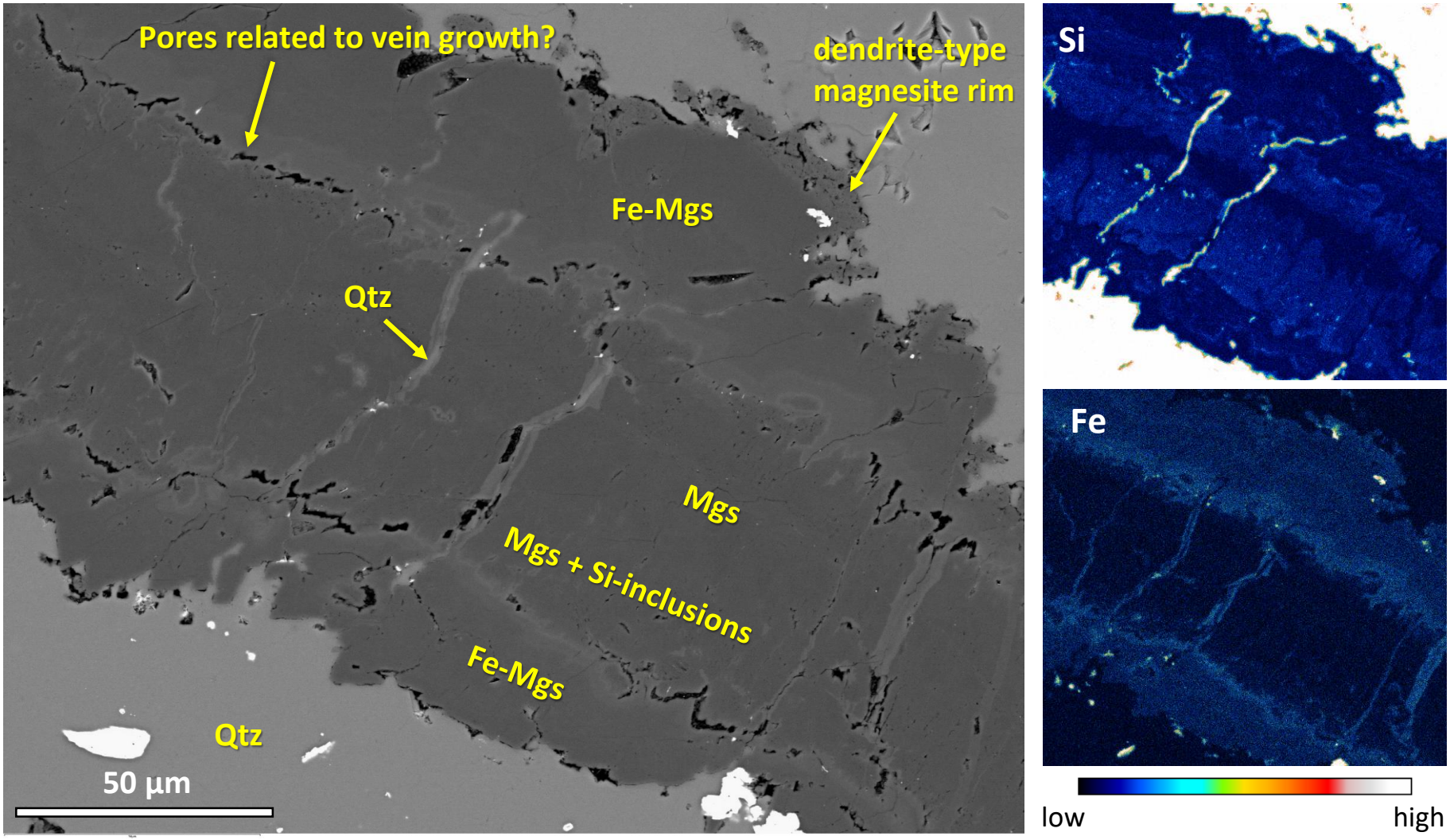

Fig. S4 *BSE image and Si and Fe EDX maps of an Ic1 zoned magnesite vein in hematite-bearing listvenite. Sample BT1B_16-3_28-31.*

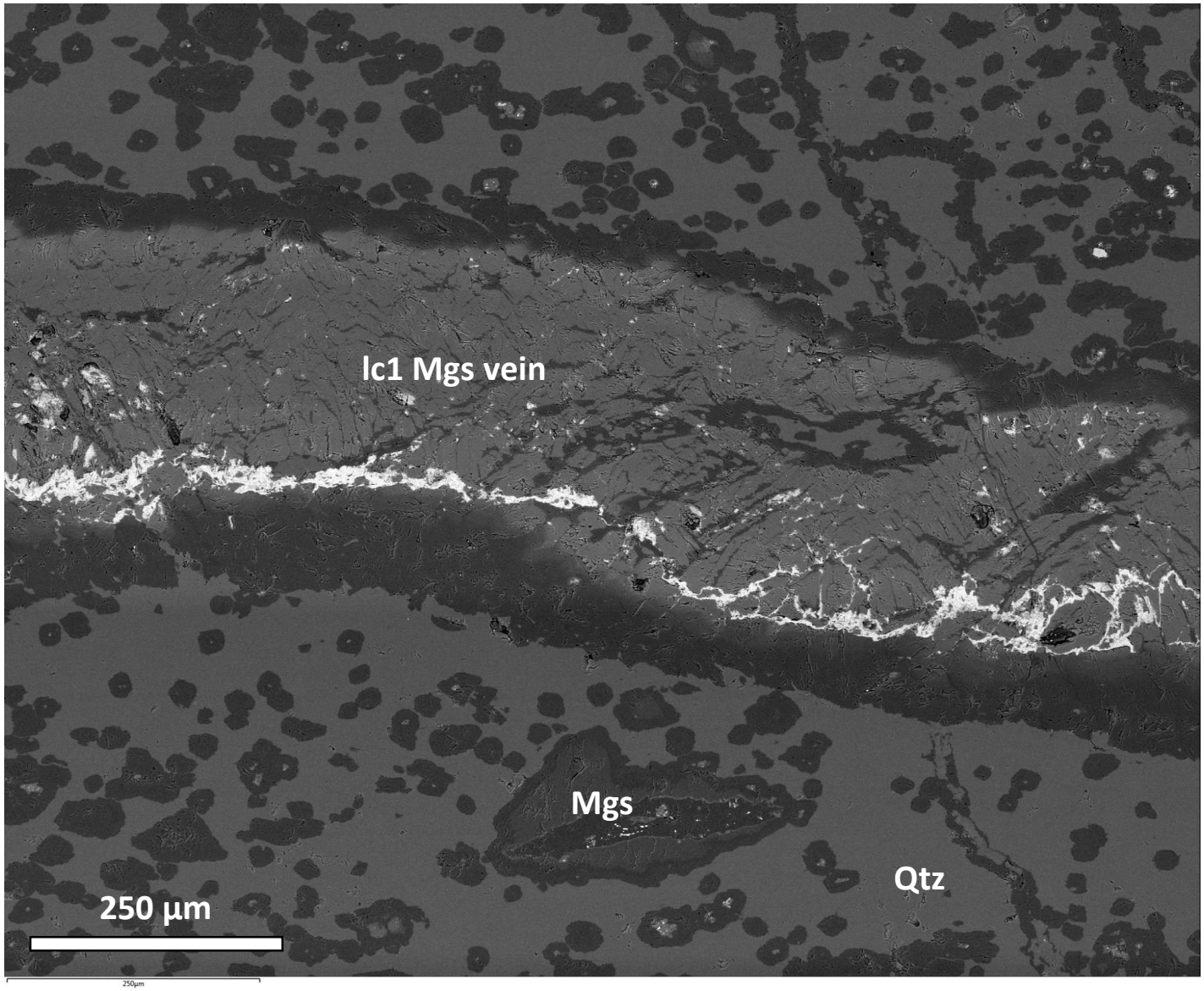

Fig. S5 *BSE image of a comparatively wide, zoned lc1 magnesite vein in listvenite, with Fe-enriched center and Fe-poor rims, and partial secondary replacement by Fe-(hydr)oxides (brightest).*

Sample BT1B_14-3_77-80

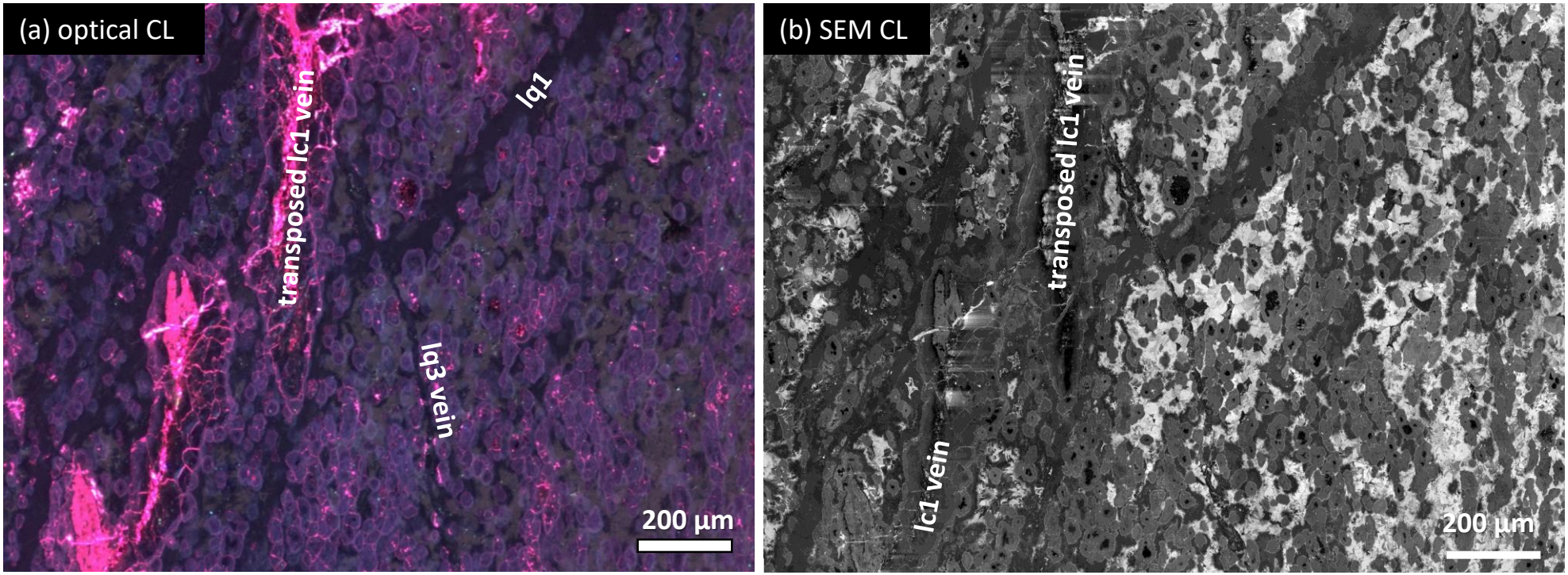

Fig. S6 *Optical CL and panchromatic SEM-CL images of the same area in hematite-bearing listvenite, showing a transposed lc1 magnesite vein (bright pink in optical CL) and cryptic lq1 quartz veins (dull luminescent in optical CL) cut by an lq3 quartz vein. Magnesite ellipsoids in the matrix are violet/purple in optical CL (a); matrix quartz is bright in SEM-CL (b). Sample BT1B_14-3_77-80*

Fig. S7 *Detail of a bi-mineralic, syntaxial lq4 magnesite-quartz vein in listvenite, showing wide blocky magnesite in vein centers and radial chalcedony. Chalcedony shows two, locally three, crack-seal events along previous median lines of the syntaxial veins. Sample BT1B_20-1_64-68.*