Supplementary material: Early carbonatite magmatism at Oldoinyo Lengai volcano (Tanzania): carbonatite–silicate melt immiscibility in Lengai I melt inclusions

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**Supplementary Table S1.** Bulk-rock measurements for the two phonolite lava flows studied herein. See methods section for further details

| Bulk-rock measurements | Measurement no | 1901739 | 1901740 |
|------------------------|----------------|---------|---------|
| Sample | Unit | 14TG18b | 14TG05B |
| SiO₂ (%) | 46.88 | 50.76 |
| Al₂O₃ (%) | 16.81 | 17.25 |
| Fe₂O₃t (%) | 7.78 | 7.34 |
| MnO (%) | 0.24 | 0.21 |
| MgO (%) | 1.02 | 1.26 |
| CaO (%) | 5.69 | 5.30 |
| Na₂O (%) | 10.04 | 9.40 |
| K₂O (%) | 5.00 | 4.75 |
| TiO₂ (%) | 1.10 | 1.20 |
| P₂O₅ (%) | 0.28 | 0.54 |
| LOI (%) | 5.21 | 2.27 |
| Total (%) | 100.04 | 100.27 |
| CO₂ total (%) | 1.05 | 0.19 |
| FeO (%) | 1.48 | 2.07 |
| S total (%) | 0.03 | 0.02 |
| F (%) | 0.19 | 0.13 |
| B (ppm) | 4.9 | 3.1 |
| Cl (ppm) | 1790 | 2770 |
| Li (ppm) | 38.5 | 24.1 |
| As (ppm) | 0.99 | 0.67 |
| Ba (ppm) | 1404 | 1444 |
| Be (ppm) | 8.96 | 7.01 |
| Bi (ppm) | 0.13 | 0.05 |
| Cd (ppm) | 0.35 | 0.25 |
| Co (ppm) | 8.45 | 9.29 |
| Cr (ppm) | 5.8 | 3.4 |
| Cs (ppm) | 0.83 | 1.34 |
| Cu (ppm) | 15.9 | 13.5 |
| Ga (ppm) | 27.9 | 29.0 |
| Ge (ppm) | 1.31 | 1.70 |
| Hf (ppm) | 9.18 | 10.7 |
| In (ppm) | 0.05 | 0.06 |
| Mo (ppm) | 1.12 | 1.18 |
| Nb (ppm) | 147 | 149 |

| Bulk-rock measurements | Measurement no | 1901739 | 1901740 |
|------------------------|----------------|---------|---------|
| Sample | Unit | 14TG18b | 14TG05B |
| Ni (ppm) | 3.1 | 2.4 |
| Pb (ppm) | 50.8 | 15.0 |
| Rb (ppm) | 89.5 | 116 |
| Sb (ppm) | 0.33 | 0.38 |
| Sc (ppm) | 1.47 | 1.96 |
| Sn (ppm) | 2.01 | 2.42 |
| Sr (ppm) | 2049 | 1970 |
| Ta (ppm) | 3.89 | 7.38 |
| Th (ppm) | 21.0 | 21.4 |
| U (ppm) | 4.17 | 3.10 |
| V (ppm) | 148 | 103 |
| Y (ppm) | 36.4 | 29.7 |
| Zn (ppm) | 197 | 158 |
| Zr (ppm) | 553 | 605 |
| La (ppm) | 129 | 124 |
| Ce (ppm) | 182 | 225 |
| Pr (ppm) | 18.5 | 21.4 |
| Nd (ppm) | 60.1 | 73.5 |
| Sm (ppm) | 9.73 | 11.4 |
| Eu (ppm) | 2.95 | 3.32 |
| Gd (ppm) | 8.03 | 8.52 |
| Tb (ppm) | 1.16 | 1.12 |
| Dy (ppm) | 6.69 | 6.03 |
| Ho (ppm) | 1.31 | 1.10 |
| Er (ppm) | 3.40 | 2.81 |
| Tm (ppm) | 0.481 | 0.401 |
| Yb (ppm) | 2.94 | 2.55 |
| Lu (ppm) | 0.397 | 0.369 |