**Table S2.** Main attributes of major Au-(base metal) occurrences, targets, and deposits from Juruena Mineral Province. Abbreviations after [1]), except Hs = hessite; Tv = tivanite; Wuf = wulfenite.

| Deposit | Resources/ Reserve | Host Rocks/Ages | Hydrothermal Alteration | Ore style/Control | Ore Mineralogy | Fluid Inclusion | Stable Isotopes | Ore-Stage Age |
|---|---|---|---|---|---|---|---|---|
| **Shallow-Emplaced Granite-Hosted Disseminated, Stockwork and Vein Gold Ores** | | | | | | | | |
| Porphyry-Type Gold Occurrences, Targets and Deposits | | | | | | | | |
| **X1 target** | Measured and indicated resources: 8.0 Mt @ 1.35 g/t Au (0.35 Moz) [2] | 1.9 Ga biotite granodiorite, 1.77 Ga tonalitic porphyry, mafic volcanic rocks of unknown age [3,4] | Potassic (Kfs, Hem), Ms–Qz–Py, Chl–Ep, Chl alteration; Cal-rich veinlets [4] | Disseminations and fine- to coarse-grained Py aggregates in Ms–Qz–Py alteration [4] | Py, Au, Ccp, Mol, Hem, Rt [4] | (1) $H_2O$-NaCl (102-263 °C; 0.88–27 wt.% NaCl eq.); (2) $H_2O$–$CO_2$–NaCl (218–334 °C; 4.7–8.9 wt.% NaCl eq.) [4] | $\delta^{18}O_{H_2O}$ = +6.5 to +7.4‰, at 458 °C; $\delta D_{H_2O}$ = –56 to –48‰; $\delta^{34}S_{sulfides}$ = –5.6 to –1.9‰ [3] | 1786 ±4.9 Ma (molybdenite Re–Os weighted age) [5] |
| **Serrinha deposit** | Unkown resources; Ore zones with 1 to 70 g/t Au and 1 to 13 g/t Ag) [6] | 1.87 Ga biotite monzogranite, minor rhyolite and diabase dikes of unknown age [6] | Potassic (Mc–Ms–Py), Sodic (Ab–Qz), Mn-chloritic, phyllic (Ms–Qz–Py), Carbonate, and Microcline alteration, distal barren propylitic halo [6] | Py disseminations with Au inclusions within Mn-Chl, Potassic and Phyllic alteration [6] | Py, Au, Ccp, Gn, Cb, Po [6] | (1) $H_2O$–$CO_2$– ($CH_4$) –NaCl fluids (4–7 wt.% NaCl eq.; 300-320 °C); (2) $H_2O$–NaCl– ($CaCl_2$) (20–23 wt.% NaCl eq.; 80-150 °C); [74] $H_2O$–NaCl– (KCl) (up to 35 wt.% NaCl eq.; 150–480 °C) [6] | $\delta^{18}O_{H_2O}$ = +1.7‰ to +8.2‰, at 420 °C; $\delta D_{H_2O}$ = –15 to –37‰; $\delta^{34}S_{sulfides}$ = +1.3 to +3.5‰ [6] | |
| **Pé Quente deposit** | | 1.97 Ga monzonite, quartz-monzonite, 1.9 Ga biotite tonalite, aplite dikes, mafic volcanic rocks of unknown age [3,7] | Sodic (Ab–Qz), Potassic (Kfs, Hem), Sericitic, Carbonate (Cal), Muscovite (Ms–Qz–Py), Silicification, Propylitic alteration, and late Kfs–Chl–Czo veinlets [7] | Disseminations in Ms alteration, and minor in sodic and Qz-Ab veinlets [7] | Py + Au ± Brt ± Hem ± Rt ± Ccp ± Gn, Wuf, Tv, Mnz, Te–Bi alloys [7] | (1) $H_2O$–NaCl (0.5-12.9 wt.% NaCl eq.); (2) $H_2O$–$CO_2$–NaCl (2.9–8.3 wt.% NaCl eq.) [3] | $\delta^{18}O_{H_2O}$ = +2.9‰ to +3.8 ‰, at 209.8 °C; $\delta D_{H_2O}$ = –63 to –49‰; $\delta^{34}S_{sulfides}$ = –4.7 to +1.8‰ [3] | 1787 ±5.5 Ma (pyrite Re–Os weighted age) [5] |
| **Luizão occurrence** | | 1.97 Ga monzogranite, 1.96 Ga syenogranite, mafic volcanic rock of unknown age [8] | Potassic (Kfs), Sericitic, Muscovite (Ms–Ser–Qz), Propylitic alteration [8] | Sulfide disseminated in Ms–Ser–Qz alteration [8] | Py + Au ± Cpy ± Rt ± Hem, Sp ± Gn, Mz, Thr, Ag [8] | (1) $H_2O$–NaCl (200–280°C; 33-37 wt.% NaCl eq.); (2) $H_2O$–$CO_2$-NaCl (95-185 °C; 2.5–15 wt% NaCl eq.). [8] | $\delta^{18}O_{H_2O}$ = +3.9‰ to +6.4‰, at 307 °C; $\delta D_{H_2O}$ = –63 to –34‰; $\delta^{34}S_{sulfides}$ = –4.6 to –1.7‰ [3] | 1787 ±6.2 Ma (pyrite Re–Os weighted age) [5] |
| **Papagaio** | | 1.79–1.78 Ga porphyritic-equigranular granite, dacite, porphyrotic granodiorite, rhyolite, and pyroclastic rock [9] | Potassic (Kfs + Bt), Sericitic (Ser–Py), Propylitic (Chl–Ep–Cc) alteration and silicification [9] | Qz–Py veins with a sericitic alteration halo [9] | Py + Cpy + Sp + ± Gn ± Mg (Au as inclusions in Py) [9] | (1) $H_2O$–$CO_2$ (115–216 °C and decrepitation at 325 °C; 0.5-24 wt.% NaCl eq.); (2) $H_2O$–NaCl (135-190 °C; 26-30 wt.% NaCl eq.), $H_2O$-NaCl (323–402 | $\delta^{18}O_{H_2O}$ = +2.2 to +4.9‰, at 325-349 °C; $\delta D_{H_2O}$ = –5 to –22‰; $\delta^{34}S_{sulfides}$ = +1.7 to +2.7‰ [9] | |

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| | | | | | | °C; 40-47 wt.% NaCl) [10] | | |
| **Structurally-controlled Veins** | | | | | | | | |
| Roots of Porphyry-Type Gold Occurrences, Targets and Deposits | | | | | | | | |
| **Paraíba deposit** | Estimated reserves: 350,000 t @ 15,35 g/t of Au (0.17 Moz) [11] | 2.7 Ga Bt gneiss, 2.04 Ga Bt tonalite, syenogranite; mafic volcanic dikes of unknown age [12,13] | Potassic (Kfs–Bt–Qz-Hem), Sericitic, Muscovitic (Mus–Qtz–Py–Cpy), Silicification, Propylitic (Chl–Ep–Cc–Py), Cloritic (Chl–Qz–Py), and later veinlets [12] | Banded to massive Qz ± Cal veins with sulfides along N05W/65-70NE dextral strike-slip shear zone [12,14] | Py, Ccp, Au, Mag [12] | (1) $H_2O$–$CO_2$–NaCl (up to 8.7 wt.% NaCl eq.; 159-315 °C); (2) $H_2O$–NaCl (up to 10 wt.% NaCl eq.; 78-234 °C); [74] $H_2O$–NaCl (40 wt.% NaCl eq.; 285–362 °C) [12] | | Pb–Pb pyrite age of 1841 ±22 Ma [15] |
| **Edu occurrence** | | 1.97–1.96 Ga monzogranite-syenogranite [8] | Potassic (Mc–Qz), Sericitic (Ser–Mus–Qz), Propylitic (Ep–Chl–Cal), Carbonatic (Cal) alteration [8,16,17] | N25–35W massive Qz veins with Qz–Ser halo, and Qz–sufide-rich veins hosted in 1.96 Ga granite [8] | Vein-hosted ore: Py + Ccp + Au; and granite-hosted oreshoots: Py, Ccp, Ccto, Cv, Gn [8] | (1) $H_2O$–$CO_2$–NaCl (1.5–15 wt.% NaCl eq.; 212-409 °C); (2) $H_2O$–NaCl (1.1-16 and 21–23 wt.% NaCl eq.; 100-279 °C) [8,17] | | |
| **Peteca occurrence** | | 2.01 Ga dacite, 1.98 Ga Hb-Qz diorite; 1.98 Ga Bt granodiorite-tonalite, and gabbro–diorite dikes of unknwon ages [18] | Sodic (Ab), Potassic (Mc–Bt–Qz), Sericitic (Ser–Mus-Qz), Silicification Carbonatic–Sericitic, Carbonatic (Cal), Propylitic, Chloritic, Muscovitic and later veinlets [19] | N70–80W/60–80NE ductile-brittle transcurrent shear zones and Qz veins [18,19] | Py, Au, Ag, Ccp, Cct, Sp, Gn, Hs, Bi-Te alloys [19] | | | |
| **Serrinha de Guarantã deposit** | | 1.97 Ga Phl schist, 1.97 Ga metadiorite; 1.89 monzogranite, orthogneiss of unknown age [20] | Propylitic (Chl-Ep-Cal), Potassic (Kfs–Qz–Bn–Ccp), Carbonatic (Dol–Cal–Chl) and Silica-infill (Qz, sulfides) [20] | Structurally-controlled Qz–Cb–sulfide veins and veinlets housed in N50°W/80SW shear zone [20] | Bn, Cc, Cpy, Au, Ag (high grade) and Py, Cpy, Bn (low grade) [20] | | $\delta^{13}C_{PBD}$ = –2.6‰ to –2.4‰; $\delta^{18}O_{SMOW}$ = +6.5‰ to +7.5‰ [20] | |
| **Epithermal Gold Veins** | | | | | | | | |
| Low- to Intermediate-Sulfidation Epithermal Occurrences | | | | | | | | |
| **Francisco occurrence** | | 2.0 Ga volcano-sedimentary sequence; 1.8 Ga granodiorite, 1.77 Ga monzogranite-syenogranite porphyry [7] | Potassic (Kfs), sericitic (Ser–Qz–Py, Sp, Gn, Ccp), argillic (Kln–Hem–Qz, Adl), silicification and silica infill (Qtz, Py, Sp, Gn, Au, Ag, Ccp, Dg), propylitic alteration, late Hem veins [7] | Qz-sulfide veins with narrow sericitic alteration halo [7] | Py, Sp, Gn, Au, Ag, Cpy, Dg [7] | $H_2O$–NaCl (83–288 °C; 6–24 wt.% NaCl eq) [7] | $\delta^{18}O_{H2O}$ = +2.1 to +3.4‰ (at 254.8 °C); $\delta D_{H2O}$ (–38 to –42‰); $\delta^{34}S_{sulfides}$ = –2.6 to +1.4‰ [3] | 1,779 ±6.6 Ma; 1,778 ±6,9 Ma 1,777 ±6.4 M (Ar–Ar in sericite) [3] |

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| **Luiz** | 1.97 Ga granodioritic and tonalitic porphyry, 1.96 Ga biotite granodiorite, mafic volcanic rock of unknown age [12] | Potassic (Kfs–Qz–Hem), Sericitic, Silicification and quartz infill, Propylitic (Chl, Ep, Cc, Qz, Rt, Py, Ccp), Chloritic (Chl–Qz–Cc) alteration, and later veins [12] | Banded Qz veins with open-space filling textures, stockworks and breccias [12] | Py, Au, Sp, Gn, Ccp, minor Bn, Ap, Rt, Bi-Te alloys [12] |
| **Pezão** | 1.98 Ga syenogranite [12] | Potassic (Kfs–Qz–Hem), Sericitic, Silicification and quartz infill, Carbonate infill (Cal), Chloritic (Chl–Qz–Cal) alteration and late veins [12] | Banded Qz veins with open-space filling textures with bladed Qz and platy Cal, minor stockworks and breccias [12] | Py, Au, and Ccp [12] |
| **Bigode** | 1.8 Ga granodiorite, 1.77 Ga monzogranite-syenogranite porphyry [21] | Potassic (Kfs), sericitic (Ser–Qz–Py), silicification and silica infill (Qtz, Py, Sp, Gn, Au, Ag, Ccp, Dg), propylitic alteration [21] | Au-sulfide veins controlled by brittle NE-SE faults [21] | Py, Sp, Gn, Au, Ag, Cpy, Dg [21] |

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