The Kuh-e Dom Fe–Cu (±Au) prospect is located in the Urumieh-Dokhtar magmatic belt and is characterized by Cu–Fe oxide and Au veins, stockworks, and breccias hosted by the Eocene Kuh-e Dom arc intrusion. Mineralization is located within NE–SW to WNW–ESE sinistral faults and likely formed in a subduction-related continental margin that is typical of porphyry and skarn deposits.

Three types of quartz vein mineralization are recognized in the Kuh-e Dom prospect, including: (i) hematite-bearing quartz stockwork, (ii) chalcopyrite–pyrite±hematite quartz breccia veins, and (iii) carbonate±quartz infilling vugs. The deposits have a distinct metal association of Fe, Cu, Bi, Co, Mo, and LREE with gold values up to 2 g/t. The host rocks are intensely altered and display a deposit-scale zonal pattern. The distal alteration zone is characterized by quartz, calcite±chlorite, and sulfide minerals and the proximal zone by albite, K-feldspar, sericite, apatite, and minor rutile. Mass balance calculations indicate that Al, Zr, Ti, Y, Nb, and HREE were immobile elements during alteration. The calculations also indicate that significant quantities of Na2O, CaO, Fe2O3, TiO2, MnO, P2O5, Th, Cu, and Co were added to the proximal altered rocks. The main gains in the distal altered rocks are in Fe2O3, MgO, CaO, Co, and LREE (Ce, La and Nd).

Fluid inclusion data suggest that the fluids which circulated in the rocks during the main mineralization event were highly saline fluids (>30 wt.% NaCl+CaCl2 equiv.), together with low-salinity aqueous (<10 wt% NaCl equiv.) and aqueous–carbonic (H2O-CO2±CH4) fluids. The temperature during the main mineralization event was between 300 and 350°C and the pressure 1 to 4 kbar. Mixing of hot magmatic fluids with a cooler fluid, perhaps meteoric water, is suggested for mineral deposition and alteration at Kuh-e Dom prospect. The mineralogy, alteration, and fluid composition of the Kuh-e Dom Fe–Cu (±Au) prospect are comparable well with Fe oxide Cu–Au (IOCG) deposits worldwide.