

# **A PhD Study on the Controls of Au-As Mineralization at the Lagares Project, Northern Portugal**

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The Variscan orogeny of northwest Iberia, and particularly in northern Portugal, has a dominant control upon the regional metallogenesis of the gold-arsenic prospects of the region. These gold-arsenic prospects are predominantly structurally-controlled and associated with silicification and sulphide mineralization.

The Lagares Au-As project is located in northern Portugal close to the town of Sobreira. Geologically, the prospect is located at the contact of a major anticlinal structure of Silurian sediments, called the Valongo Anticline, and the Hercynian-aged Castelo de Paiva granite. Key prospects within the project area are Castromil and Serra da Quinta, which are the focus of current exploration work, and have mineralization extensive over a total strike length of 4 km. The strike of the mineralization is northwest, dipping to the northeast, and broadly parallel to the axial plane. The NW-trending contact between the Silurian sediments and Hercynian granites is both an intrusive contact and has been subsequently normal faulted with the NE-block being downthrown and subsequently cut by NE-trending faults.

The previous geological model for the Castromil and Serra da Quinta was one of mineralization forming under a compressive regime and associated with high-angle reverse. However, recent work undertaken by Medgold, [1,2] have identified the dominant control on mineralization is formed under normal faulting conditions. Furthermore, the recent identification of the NE-trending faults in the region, which intersect the dominant NW-trending faults perpendicularly, may be generating significantly increased mineralized thicknesses and grades.

The aims of this new PhD study, undertaken in collaboration between the University of Porto and Medgold Resources Corp., is to better understand the gold-arsenic metallogenesis at the Lagares project. Particular focus will be made to the structural controls upon mineralization, and the implications for regional exploration, aiming to identify and delineate various vein orientations, dilation, and possible plunging ore shoots. The study will also undertake detailed field analysis and analytical geochemical and petrographical studies. Fluid inclusion studies of the different mineral phases will be undertaken and combined with geochronological dating of both the different mineral phases and the granitoid host rocks.

## **References**

- [1] D. McKenzie, and D. Craw. “Controls on gold mineralization at the Valongo, Vila de Rei, Salguerio, Castromil, Serra da Quinta and Limarinho prospects, northern Portugal”, Internal Report for Medgold Resources Corp., June 2014.
- [2] J. K. Mortensen. “Investigations of gold mineralization in the Lagares, Balazar and Castelo de Paiva concessions, northern Portugal: results and recommendations for future exploration,” Internal Report for Medgold Resources Corp., August 2013.