Code B_2722

Department	Life and Environmental Sciences
UniCa reference person	Paolo Francalacci
Project title in English	Reconstructing an Human Ancestral Y chromosome Reference Sequence
Project title in Italian	Ricostruzione della sequenza ancestrale del cromosoma Y umano
Subject area of reference (World University Ranking)	LIFE SCIENCES
Project summary and VPS' profile	Mutational events along the human Y chromosome phylogeny are identified through Next Generation Sequencing using the GRCh38 (Genome Reference Consortium Human Build 38) as a reference. The Y chromosome in GRCh38 is a chimaera of two contemporary individuals, one belonging to the R1b haplogroup and encompassing the large majority of the published sequence, while the rest is coming from an individual belonging to the G2a haplogroup. However, this reference sequence complicates the interpretation of new sequencing data, either because of its composite nature, and because the sequences of individuals belonging to one of the two modern haplogroups are identical to the reference for most of its variation (and therefore their polymorphisms are not scored), while they are actually phylogenetically derivate. The aim of this project is to reconstruct an Human Ancestral Y chromosome Reference Sequence, based on the comparison of the most divergent modern human Y sequences (haplogroup A00) with available sequencing data from ancient human species (Neanderthal, Denisovan). As already made for mtDNA, the use of the "Copernican" reassessment of the human Y chromosome tree from its deepest root as a reference is expected to easier the phylogenetic analysis solving the mentioned problems. The VPS will be involved in the Department's research activities regarding the phylogenetic analysis of Y chromosome. The VPS will give specific seminars on the topic in the Advanced Cellular Studies and other Biology/Biotechnology Degree Courses. The ideal VPS should be an international expert in the field of bioinformatics applied to evolutionary genetics and sapiens/neanderthal/denisovan genomics.
Proposed length of stay	Short visit of 10 days
Expected period of activity	Spring 2024
Academic position of the VPS'	Professor
Course of Study	Laurea magistrale (2nd cycle University Degree)
Language of instruction	English, Italian