**PhD Project - Dottorato di Ricerca in Genetica e Biologia Molecolare (XXXIII cycle)**

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**Project title:** Diversity and evolution of palindromic sequences of the human sex chromosomes

**Summary:** It has been recently discovered that sex chromosomes of different species are enriched in large palindromic sequences that contain genes with a testis-predominant expression. These palindromic structures are characterized by a high arm-to-arm sequence identity (often > 99.9%) due to the homogenising effect of recurrent ectopic gene conversion. Their independent appearance in different species suggests they can have a profound biological significance that has yet to be fully clarified.

The aim of the present PhD project is to investigate the interplay between mutation and gene conversion in determining the peculiar features of the palindromes of the human Y chromosome. To this aim, advanced techniques of genotyping and DNA sequencing will be used to characterize a large number of males representative of widely divergent Y chromosome haplogroups already available in our lab.

**Publications (2010-2017) - Publications # 1, 2, 4, 10, 17 and 19 are particularly relevant for the present project**

1) **TROMBETTA B, D’ATANASIO E, CRUCIANI F* (2017)** Patterns of Inter-Chromosomal Gene Conversion on the Male-Specific Region of the Human Y Chromosome (review). Front Genet 8:54


14) **TROMBETTA B, CRUCIANI F, SELLIITTO D, SCOSZARI R (2011)** A new topology of the Y chromosome haplogroup E1b1a1c1b2a (E-P2) revealed through the use of newly characterized binary polymorphisms. PLoS One 6:e16073


