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The University of Tennessee, Knoxville

Born in 1972 in Madrid  
Studied Economics at the Universidad Complutense de Madrid and Biology at  
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## PROJECT

### Genetic Conflict\*\*

The focus of my research is the evolutionary biology of genetic conflict. I study conflict between genes either over transmission or over expression. In particular, I have worked (and continue working) on theoretical aspects of meiotic drive and gene conversion - within the category of transmission distortion - and genomic imprinting and X-chromosome inactivation - within the category of differential expression.

I would like to devote my short stint at the Wissenschaftskolleg to address the following question: Why are imprinted genes clustered within the genome? An imprinted gene is a gene that has a different pattern of expression depending on whether it is inherited via sperm or via egg. A conflict may emerge when a gene's expression in one individual has fitness consequences for other individuals who have different probabilities of carrying a copy of the first individual's paternally-derived allele. Such is the case in a mating system in which females have multiple partners and the resources to raise the offspring are fixed and provided by the mother. Paternally-derived alleles in an offspring will be selected to demand a greater amount of resources than maternally-derived alleles in the same offspring. When the expression of a particular gene results in a greater allocation of maternal resources to her offspring, the maternally-derived allele in this offspring will be silenced and vice versa.

One reason why imprinted genes are peculiar is that they tend to cluster in the genome. I am interested in addressing how these clusters and their expression architecture have evolved.

#### Recommended Reading

Úbeda, F. and B. B. Normark. 2006. "Male killers and the origins of paternal genome elimination." *Theoretical Population Biology* 70: 511-526.

Úbeda, F. and D. Haig. 2005. "On the evolutionary stability of Mendelian segregation." *Genetics* 170: 1345-1357.

Úbeda, F. and D. Haig. 2003. "Dividing the child." *Genetica* 117: 103-10.

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PUBLICATIONS FROM THE FELLOWS' LIBRARY

Úbeda de Torres, Francisco (2010)

A model for genomic imprinting in the social brain : adults

<https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=1046036254>

Úbeda de Torres, Francisco (2005)

On the evolutionary stability of Mendelian segregation

<https://kxp.k10plus.de/DB=9.663/PPNSET?PPN=768667690>