



Dr. Marisa Bartolomei (University of PA) was the guest speaker on November 18, 2008, on the topic of “Epigenetic Regulation of Genetic Imprinting.” The meeting was held in the University of Pennsylvania quadrangle. Dr. Bartolomei was a postdoctoral fellow with Dr. Shirley Tilghman (now President of Princeton University) and she herself has over 100 publications in *Cell*, *Nature* and *Science*, as well as numerous awards. In particular in 2006 she won the first annual Society for Women’s Health Research Medtronic Prize for Scientific Contributions to Women’s Health for her work in the field of sex differences research and women’s health.

After some initial anecdotes on how the local environment can affect early fetal development, her talk was primarily focused on genetic imprinting, which is unequal expression of the maternal and paternal alleles of the gene (an allele is one member of a pair of genes that occupies a specific position on a specific chromosome). This is primarily mammalian-specific, with ~100 genes being imprinted. Interestingly, those genes are mainly important for growth regulation. Dr. Bartolomei’s research focuses on a cluster of imprinted genes on the distal end of mouse chromosome 7, where the maternally-expressed H19 and the paternally-expressed insulin-like growth factor 2 (IGF2) genes reside. The H19 locus produces RNAs with a regulatory function instead of encoding for protein. IGF2 is a fetal growth factor. For expression on only one chromosome, the genes must be marked in the eggs or sperm. This occurs via DNA methylation which decreases or eliminates the expression of the gene. Using gene targeting and transgenic experiments, sequences necessary for the imprinting of these two genes have been identified. Ancillary factors that influence this process are also under study. The CTCF locus, which encodes a protein that helps to loop the DNA in a particular enhancer/promoter region, is involved in the embryonic H19 activation. In this case, CTCF binding prevents the acquisition of methylation of the maternal allele.

She ended her presentation with several words of wisdom. One was to point out the “power of genomics,” that the areas of greatest conservation will have important roles in the organism. The other was to take advantage of serendipity, by keeping an open mind when reviewing data. Finally, she hypothesized that because of imprinting, bringing back extinct species from their DNA (like in *Jurassic Park*) would not be possible even if the entire genome were reconstructed from the DNA fragments.

Dr. Bartolomei is an energetic speaker who kept the audience engaged and fielded a number of questions throughout the presentation, showing the interest of the audience. She is clearly very committed to women's health issues, a field in great need of more quality research.



Dr. Marisa Bartolomei (right) speaking with (left to right) Drs. Alice Marcy, Edith Malin, Ellie Brown and Sita Aswathi.