B·DEBATE International Center for Scientific Debate BARCELONA

CRAG CENTRE DE RECERCA EN AGRIGENÒMICA CSIC IRTA UAB

DAMON LISCH

CV

PARTICIPANT AT:

EVOLUTION OF PLANT PHENOTYPES
FROM GENOMES TO TRAITS

March, 17th-18th, 2015, Barcelona

Damon Lisch, associate professor, Purdue University, West Lafayette, USA

Damon Lisch received his Ph.D. in Genetics from the University of California, Berkeley. He then did postdoctoral research with Dr. Margaret Kidwell, with whom he investigated horizontal transfer of transposable elements in Drosophila, and Dr. Vicki Chandler, with whom he examined the relationship between paramutation and transposon silencing in maize. For the next several years, Dr. Lisch was a Professional Researcher at U.C. Berkeley. He is now an Associate Professor at the Purdue University, where he continues to investigate the evolution and epigenetic silencing of transposable elements in maize and related species.

B·DEBATE IS AN INITIATIVE OF:

biocat "la Caixa" Foundation

B·DEBATE International Center for Scientific Debate BARCELONA

CRAG CENTRE DE RECERCA EN AGRIGENÒMICA CSIC IRTA UAB

DAMON LISCH

ABSTRACT

PARTICIPANT AT:

EVOLUTION OF PLANT PHENOTYPES
FROM GENOMES TO TRAITS

March, 17th-18th, 2015, Barcelona

Damon Lisch, associate professor, Purdue University, West Lafayette, USA

Developmentally Programmed Changes in Epigenetic Silencing of a Maize Transposon

There is a growing body of evidence that transposon silencing is a far more dynamic process than had been previously suspected. Although most transposons appear to be transcriptionally silenced much of the time, at various stages during plant development transposons are released from their silenced state and permitted to express transcript. This occurs in cells or tissues that are adjacent to, but not part of, the germinal lineage. At least a subset of these transposon transcripts are converted into double-stranded RNA and then processed into small RNAs, which are then thought to be transported to the germinal lineages. The result is a system in which the host can detect the most potentially dangerous transposons and reinforce silencing. I will describe experiments in maize that suggest that a similar phenomenon occurs in leaves during the transition from juvenile to adult growth, although in this case the target is an active transposon whose silencing is being triggered by a hairpin RNA. Further, I will provide evidence that other genes that are regulated by the trans-acting RNA silencing system are also responsive to changes occurring in transition leaves. These results reinforce the idea that transposon silencing is exquisitely sensitive to developmental context, and that gene silencing and transposon silencing are inextricably intertwined.

B·DEBATE IS AN INITIATIVE OF:

biocat "la Caixa" Foundation