

Glycerophospholipid metabolism remodeling was important in the process of maize adaptation to highlands. We have found that genes involved in glycerophospholipid metabolism and, in particular those that control the phosphatidylcholine/lyso-phosphatidylcholine (PC/LPC) ratio, are under selection in highland Mexican maize and show associations with phosphorus availability

I will also show results from common garden experiments in Mexican lowland and highland common gardens where we grew a B73 x highland landrace recombinant inbred line (RIL) mapping populations to identify identified major QTLs that explain the conversion PCs to LPCs. Based on overlapping selection and QTL signals and predicted biochemical function, we have identified a gene (*Zea mays* phospholipase A1 2, *pla1.2*) that code for an enzyme controlling the PCs/LPCs ratio as the most likely causative genes of the PC/LPC conversion QTLs.

I will present ongoing work to functionally characterize the adaptive significance and function of *pla1.2* and it's possible effect on maize fitness.