OMICS International
conferenceseries.com

J Biotechnol Biomater 2015, 5:6
http://dx.doi.org/10.4172/2155-952X.C1.044

Bioinformatics analysis of patatin-like phospholipase domain containing protein (PNPLA) family members from diverse organisms

Savita Mishra, Reshma Parveen and **Mahesh Kumar Basantani**
Shri Ramswaroop Memorial University, India

The patatin-like phospholipase domain containing protein (PNPLA) family is a novel family of lipid-metabolizing enzymes with homology to plant lipases. Several members of this family have been shown to play critical roles in human metabolism and disease, particularly PNPLA2 (also known as adipose triglyceride lipase, ATGL) and PNPLA3 (or adiponutrin). PNPLA2 catalyzes the rate-limiting step in triacylyglycerol (TAG) hydrolysis. PNPLA3 is a nutritionally-regulated gene that is strongly associated with hepatic steatosis/injury in humans. At least 9 related PNPLA proteins have been identified in humans and numerous other evolutionarily related proteins have been identified in non-human species. Although several of these proteins have been shown to play critical roles in normal physiology and disease, the regulation, function and physiological relevance of many of these proteins remain largely unknown. A bioinformatics analysis of both protein and DNA sequences belonging to a diverse set of animal and plant species was performed. The aim of the study was to evaluate the similarities and differences in lipid metabolism in plant and animal systems with an emphasis on patatin-domain containing proteins. The comparative biology of patatin-like proteins in plants and animals will provide novel insights in the role of intracellular lipid metabolism and its impact on basic cellular processes that impact normal metabolism and disease in both the kingdoms.

mkbasantani@gmail.com

Diversity of Iron and Zinc in the Seeds of Indian Wheat Landrace

Sonia Goel, R S Jaat, A M Singh and **N K Singh**
National Research Centre on Plant Biotechnology, New Delhi

Wheat germplasm is a key factor in sustainable wheat breeding programme. Increasing the amount of bioavailable mineral elements like iron and zinc in wheat would help to improve the nutritional status of populations in developing countries like India. It is important to have information on genetic variations among different wheat landraces by which plant breeding programs can use new varieties in cross-breeding programs. In this study, estimation of iron and zinc in 180 wheat landraces was performed in duplicate using an Oxford Instruments X-Supreme 8000 based on technique of X-ray fluorescence analysis (XRF). Material for the study was obtained from National Beuro of Plant Genetic Resourses, Delhi, India. The results showed that the iron and zinc distribution ranges of Indian wheat landraces are 33 mg/kg to 51mg/kg and 30 mg/kg to 67 mg/kg respectively. The landraces with the highest iron content, 51 mg/kg have zinc 56 mg/kg and the landrace with the highest zinc content 67 mg/kg, showed iron concentration of 50 mg/kg. Iron, zinc-rich genotypes identified from this study opens up the possibilities for the identification of genomic regions responsible for mineral uptake and translocation that can be used as donor for developing nutrient enriched varieties.

soniagoeliari@gmial.com