



Covering Environments—The CEAC Monthly Seminars

UNDERSTANDING SEED DEVELOPMENT: BIOCHEMICAL & MOLECULAR CONTROL MECHANISMS

December 2, 2016 @ 4:30pm

Controlled Environment Agriculture Center, 1951 E Roger Rd

Ramin Yadegari, PhD

Professor, School of Plant Sciences
Genetics Graduate Interdisciplinary Program, Bio 5 Faculty
College of Agriculture & Life Sciences
The University of Arizona

Ever wonder where flour comes from, how cereal grains provide nutrition for animals and human, and what the main ingredient for beer production is? Turns out it is all in the nutritive component of the plant's seed called the endosperm. And, it is this endosperm which often is a main source of food, feed, and industrial raw materials.

So, what does all of this have to do with our speaker Dr. Ramin Yadegari? Turns out he is a world leader in the exploration of the mechanisms which regulate endosperm cell differentiation which is essential for seed development and the resulting nutrition eventually required in seed germination.

Yadegari's research team has two essential goals: first, to understand the basic molecular-genetic mechanisms that regulate endosperm development, and second, through this understanding to improve the nutritional value of seeds so essential to human and animal consumption as foodstuffs.

As a testament to Yadegari's leadership in the search for the genetic regulatory mechanisms of plant endosperm development, he was recently named by the National Science Foundation as the Principal Investigator of a large (close to \$7.5M) consortium grant. Yadegari explains that the objective of this research is to elucidate the molecular-genetic control mechanisms which are responsible for the development of the endosperm from a single cell into a multicellular structure. Understanding these mechanisms, adds Dr. Yadegari, is likely to affect many economically important processes including regulation of seed size and the accumulation of carbohydrates and proteins during seed maturation. It is these nutritional elements which are essential not only to the plant's development but also to human and animal nutrition because they consist of more than 50% of the calories consumed by humans.

Dr. Yadegari's lecture will, without doubt, integrate closely with CEAC's research and teaching missions designed to improve crop production in controlled environments under novel growing conditions.