

## Gene expression signatures identify novel regulatory genes and signaling pathways in young hypertensive patients making them susceptible to develop premature coronary heart disease

Salma Ahmadloo

Shahid Beheshti University, Iran

Hypertension stands out as major modifiable risk factors for premature Coronary Heart Disease (CHD) and it is well established that the incidence of over 80% of CHD is attributable to the modifiable risk factors including hypertension. This chronological study was carried out for the purpose of profiling expression of hypertension associated genes and identify related biological process and modulated signaling pathways of young Malaysian subjects (<55 years old, total number= 168) with hypertension who had developed premature CHD after at least five years. In order to achieve the goal, four groups of subjects were divided into: (1) 42 Healthy subjects, (2) 42 subjects with only HT, (3) 42 subjects with only HT and (4) 42 subjects with CHD+HT. The RNA was extracted from blood specimens by mean of commercial extraction kits. The RT2 Profiler™ PCR Array was utilized to determine gene profiling on group 1 and group 2, group 1 and group 3, group 1 and group 4. To validate the results of RT2 Profiler™ PCR Array, significantly dysregulated genes were selected and validation was conducted through q-RT-PCR in a larger and independent population. For this purpose, new subjects (total number=150) were divided into: (1) 75 Healthy subjects, 2) 75 subjects with hypertension+CHD. Sixteen significantly dysregulated genes related to hypertension were identified and the Ras cell signaling pathway was highlighted as a culprit in people suffering from hypertension which may be prone to CHD. *In silico* analysis showed that the majority of the identified genes involved in renin-angiotensin regulation and other categories related to renin-angiotensin such as, regulation of blood volume and regulation of blood vessel by renin-angiotensin. In conclusion, some differentially dysregulated genes and modulated pathways were identified which warrant further investigation in the setting of premature hypertension and CHD.

### Biography

Salma Ahmadloo completed her PhD the field of Human Genetics at University Putra Malaysia, currently she is postdoctoral fellowship at Shahid Beheshti University, Iran. She is an experienced senior researcher with a demonstrated history of working in higher education industry, skilled in gene expression profiling, PCR array technique, real time PCR and Genotyping.

salma.ahmadlou@gmail.com