A new hope in preventing the progression and treating Alopecia areata

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Unfortunately, all treatment strategies currently used for Alopecia Areata (AA) are unsatisfactory. There are now supporting evidence that CD4+ and CD8+ T cells are involved in the pathogenesis of AA. Here, we targeted CD4+ and CD8+ by generating a L-tryptophan, an essential amino acid, deficient environment within which these cells can no longer become activated against hair follicle. To achieve this, we have successfully used IP injection of IDO, an enzyme that breaks down L-tryptophan to its metabolites, expressing cells in an AA mouse model and showed that none of AA affected mice developed AA as compared to 80% of control mice which developed extensive AA within 8-16 weeks after transplantation of an AA affected skin. The size of the lymph nodes in IDO treated mice was significantly smaller than that of non-IDO treated alopecia mice consistent with an absence of an inflammatory response. Importantly, this treatment significantly reduced the number of infiltrated immune cells (CD3+, CD4+ and CD8+ cells) at the site of AA affected skin as compared to that of controls. These findings indicate that IP injected IDO expressing dermal fibroblasts controls the inflammation and thereby reverses the progression of AA in this model. In conclusion, we have provided a supporting evidence that the progression of AA can be prevented by using a novel strategy in generating a tryptophan deficient environment within which active CD4+ and CD8+ Tcells attacking hair follicles become dysfunctional and no longer are able to prevent the hair growth in our AA model.

Biography
Aziz Ghahary, PhD and Professor, the Director of the BC professional Firefighters "Burn and Wound Healing Research Group’ has published more than 168 peer-reviewed articles some of which directly related to autoimmune diseases such as type I diabetes. He has been awarded more than 50 research grants from different local, national and international granting agencies. He is the leading investigator in identifying a serum 14-3-3 eta protein as a biomarker for early detection of RA and psoriatic RA and this test has now been launched by the Quest Diagnosis and Lifelab in US and Canada, respectively. Finally, he recently identified a small molecular with anti-scaring properties, which has now been approved by the Health Canada and the Vancouver General Hospital Ethic Committee to proceed to Phase 1 Clinical Trial.

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