



## Th22, Th17 and Th17/Th22 cells in colon cancer development

**Hassan Doulabi<sup>1,3</sup>, Maryam Rastin<sup>1</sup>, Mahmoud Mahmoudi<sup>1</sup>, Hossein Shabahang<sup>2</sup>, Seyed- Alireza Esmaeili<sup>1,3</sup>**

<sup>1</sup>Immunology Research Center, BuAli Research Institute, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>2</sup>Endoscopic & Minimally Invasive Surgery Research Center, Ghaem Hospital, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

<sup>3</sup>Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

Email: doulabih901@mums.ac.ir

**Introduction & Aim:** T helper 22 (Th22) and T helper 17 (Th17) are involved in the immunopathogenesis of inflammatory diseases but their role in cancer remains unclear. The aim of this study to investigate the profile of Th22, Th17 and Th17/Th22 cells in colon cancer (CC) patients with regarded to tumor staging.

**Methods:** A total of thirty newly-diagnosed CC patients were examined for the frequency of intratumoral Th22, Th17, and Th17/Th22 cells in tumor tissues and non-tumor tissues (away from local tumor, as control sample). After mincing, isolation and stimulation, the cell suspensions were stained with specific antibodies, including CD4 FITC, IL-22 PE, IFN- $\gamma$  PreCP, IL-17 APC. Then, using four color flow cytometry, the expression levels of Th22 (CD4+IFN- $\gamma$ -IL-17-IL-22<sup>+</sup>), Th17 (CD4+IFN- $\gamma$ -IL-17+IL-22<sup>-</sup>) and Th17/Th22 (CD4+IFN- $\gamma$ -IL-17+IL-22<sup>+</sup>) cells were determined. Flow cytometry data were analyzed with Flowjo software.

**Results:** The percentage of intratumoral Th22, Th17 and Th17/Th22 cells were significantly were highly increased in tumor tissues compared with that in non-tumoral tissues ( $p<0.001$ ,  $p<0.01$ ,  $p<0.01$ , respectively). However, the percentage of Th22, Th17 and Th17/Th22 cells were significantly higher in advanced stage III-IV of the tumor versus early stages I-II ( $p<0.01$ ). Our results indicate that the increased



The 3<sup>rd</sup> International Gastrointestinal Cancer Congress



expression of intra-tumoral Th22, Th17 and Th17/Th22 cells were positively correlated with tumor staging.

**Conclusion:** These data suggest that intratumoral Th22, Th17 and Th17/Th22 cells may play an important role during colon cancer establishment and progression. However, targeting Th22 cells may have a potential therapeutic efficacy in patients with CC.

**Keyword:** Th17 cells, Th22 cells, colon cancer, tumor, paratumor