

## Phenotypic and Functional Characterization of Kidney Infiltrating Lymphocytes in Diabetic Kidney

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## Phenotypic and Functional Characterization of Kidney Infiltrating Lymphocytes in Diabetic Kidney

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**Background:** Recent evidence supports a role of immunologic pathogenesis of diabetic nephropathy, but immune cell-mediated mechanisms in this disease are still largely unknown state. We therefore characterized the lymphocyte populations infiltration into diabetic mouse kidney.

**Methods:** Diabetes was induced in eight-week-old male C57/BL6J mice by intraperitoneal injection of streptozotocin. After 20 weeks of STZ injection, kidney mononuclear cells (KMNC) were isolated for flow cytometry analysis, and kidney tissue used for immunohistochemistry and real-time PCR.

**Results:** Immunohistochemistry and flow cytometry staining of KMNC showed increased trafficking of CD3+ T cells in diabetic kidney. The main increase of CD3+ T cells in diabetic kidney was CD4+ T cells, the percentages of CD4+ T cells markedly increased ( $25.1 \pm 2.1\%$ ) compared with normal ( $17.1 \pm 1.2\%$ ,  $p < 0.001$ ). IFN- $\gamma$  and TNF- $\alpha$  mRNA expression was increased significantly in diabetic mice kidney compared control mice (5.0-fold and 4.9-fold,  $p < 0.05$ ). To confirm the source of these cytokines, we examined for intracellular cytokine production of by CD3+ T cells. Flow cytometry analysis of KMNC of diabetic mice showed significantly increased production of IFN- $\gamma$  and TNF- $\alpha$  by CD3+ T cells when compared with normal mice kidney.

**Conclusion:** These quantitative and functional changes in kidney lymphocytes provide mechanistic insight into how lymphocytes modulate diabetic kidney injury.

**Key Words:** 신림프구, 당뇨병성신증

Kidney lymphocyte, Diabetic nephropathy