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Association between Mineralocorticoid Receptor Expression in the Small Intestine and IL-10 Derived from Spleen in the Salt-Sensitive Hypertension with the Obesity

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Summary

Objective; We investigates whether spleen and small intestine influences obesity-induced hypertension.

Method; Both wild type and IL-10 knockout mice were divided into four groups, standard (ST)-fed + saline, high fat (HF)-fed + saline, HF-fed + splenectomy (SPX) treatment, HF-fed + SPX + IL-10 treatment groups. We examined systolic pressure, urine and feces sodium excretion, plasma aldosterone concentration, and expression of mineralocorticoid receptor (MR) in small intestine with immunohistochemistry.

Results; 1) Reduction of spleen-induced IL-10 by obesity elevates systolic pressure, 2) Reduction of spleen-induced IL-10 decreases sodium and feces sodium excretion, 3) Reduction of spleen-induced IL-10 increases plasma aldosterone concentration, 4) obesity reduces MR expression in small intestine, but obesity-induced decrease of splenic IL-10 is not associated with MR expression in small intestine.

Conclusion; Obesity-induced reduction of splenic IL-10 induces elevation of systolic pressure, promotes sodium absorption from small intestine as well as kidney, although is not involved with expression of MR in small intestine.