

**LEPTIN RECEPTOR EXPRESSION
ON T LYMPHOCYTES
MODULATES CHRONIC INTESTINAL
INFLAMMATION IN MICE**

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LEPTIN

- 16 kDa PROTEIN
- MAINLY PRODUCED BY ADIPOSE TISSUE
- LEPTIN LEVELS DIRECTLY CORRELATED TO THE ADIPOSE MASS

LEPTIN AS A MASTER HORMONE

LEPTIN EXERTS A TONIC CONTROL ON:

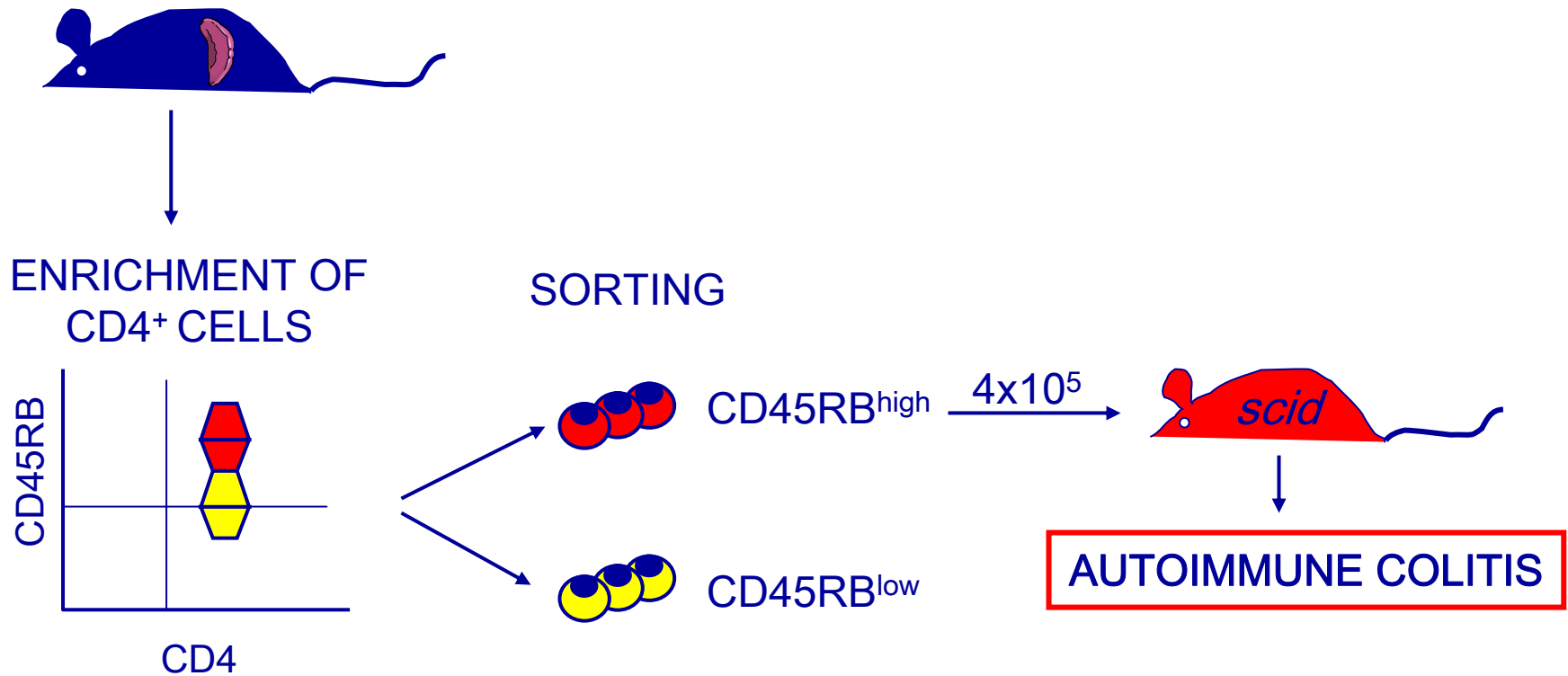
- APPETITE AND ENERGY EXPENDITURE
- GLUCOSE AND FAT METABOLISM
- ADRENAL AND THYROID FUNCTION
- BONE MASS
- REPRODUCTION
- SYMPATHETIC NERVOUS SYSTEM ACTIVITY
- BLOOD PRESSURE
- IMMUNE RESPONSE

LEPTIN-DEFICIENT MICE ARE PROTECTED IN MODELS OF AUTOIMMUNE DISEASES

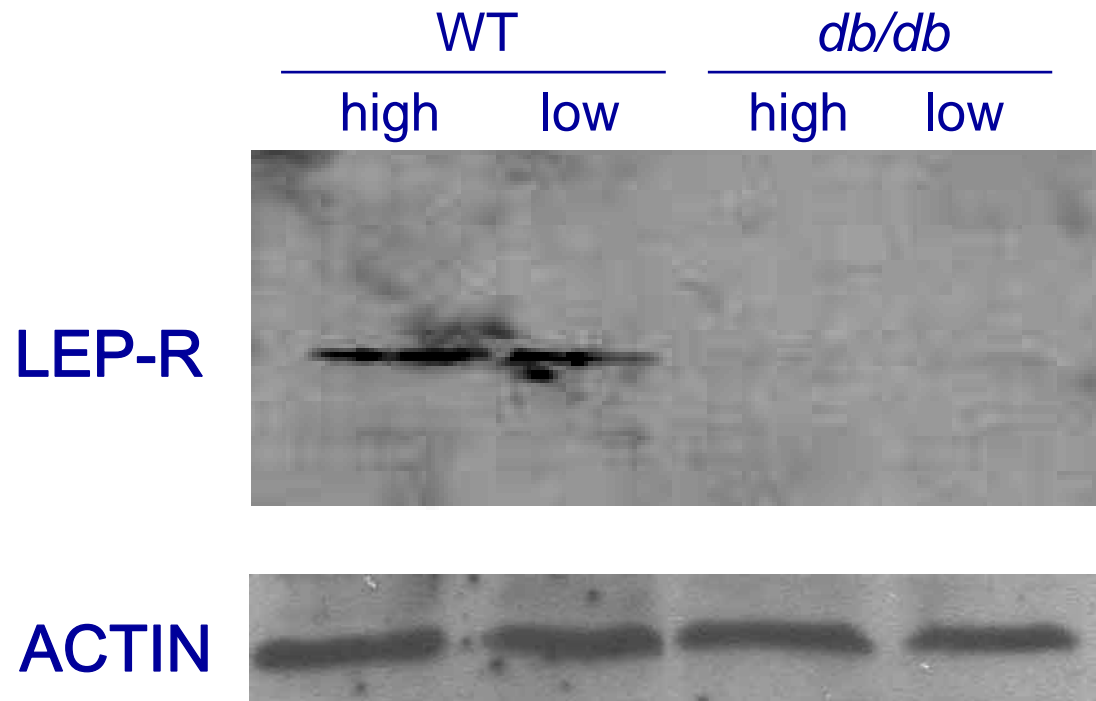
- INFLAMMATORY BOWEL DISEASE
- T CELL-MEDIATED HEPATITIS
- EAE
- CIA

WHICH CELLS ARE RESPONSIBLE FOR THE
IMMUNE-MODULATING EFFECTS OF LEPTIN?

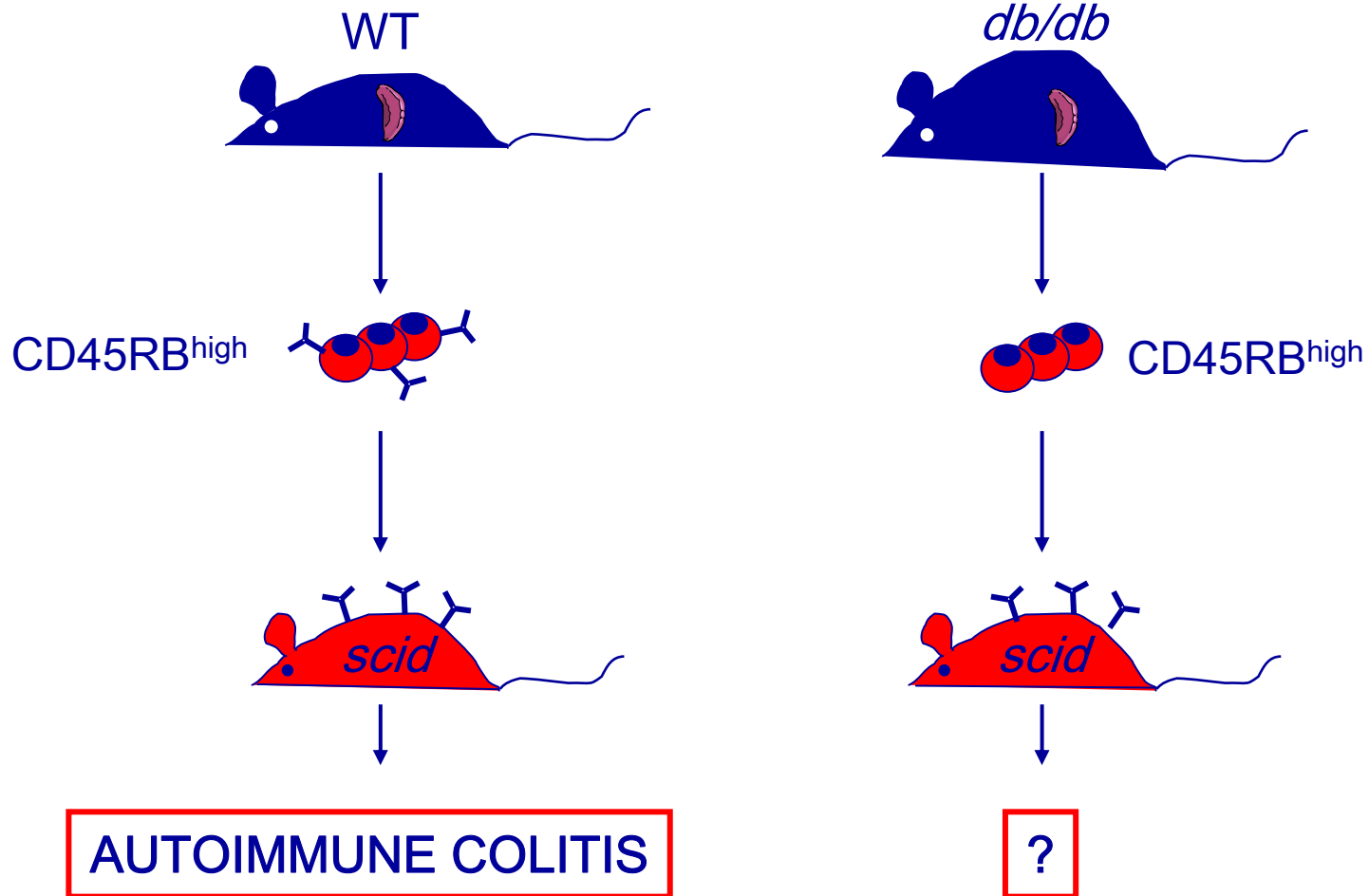
COLITIS INDUCED BY TRANSFER OF CD4⁺ CD45RB^{high} CELLS INTO *scid* MICE



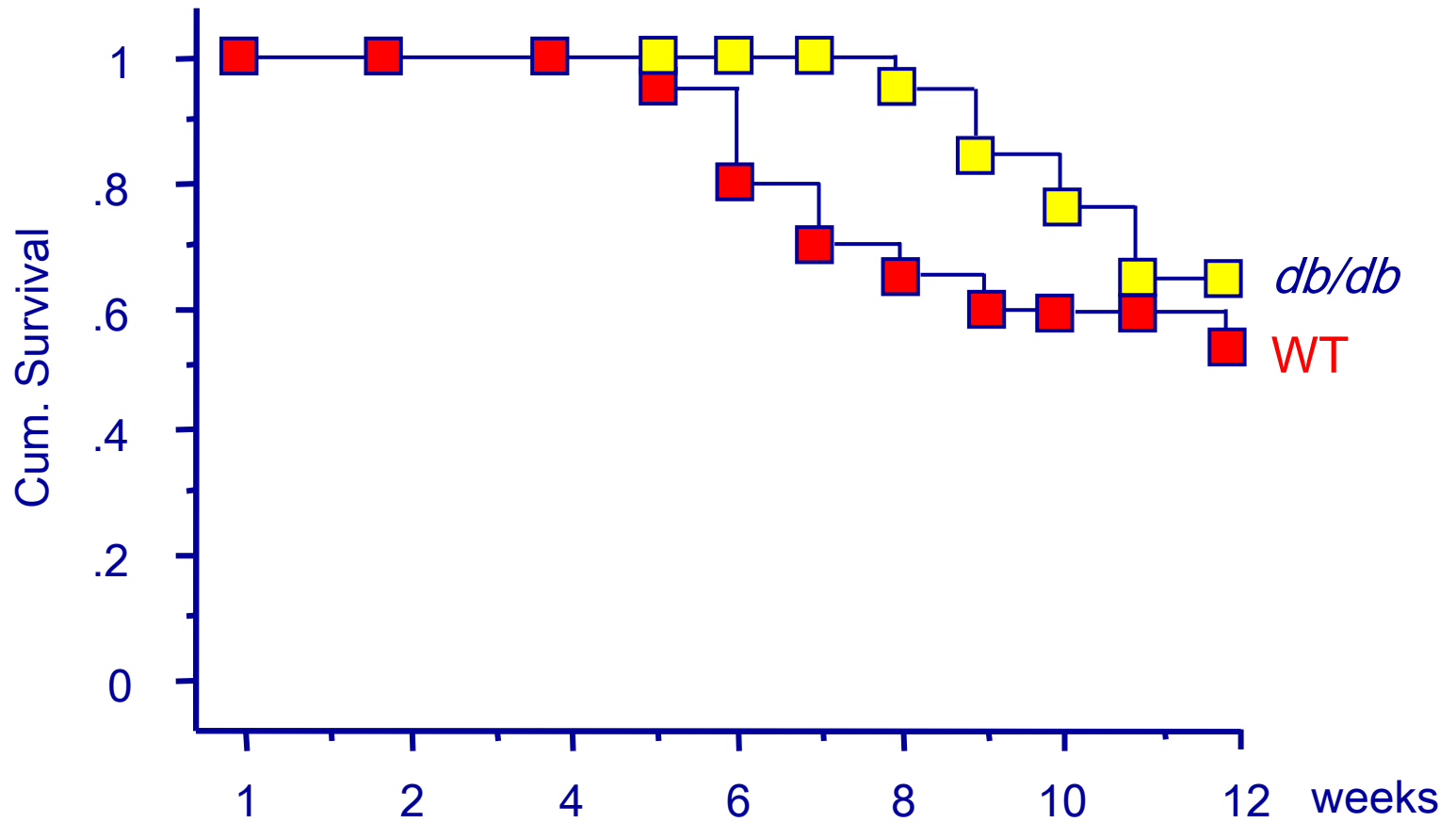
**BOTH CD45RB^{high} AND CD45RB^{low} CELLS
EXPRESS LEPTIN RECEPTORS**



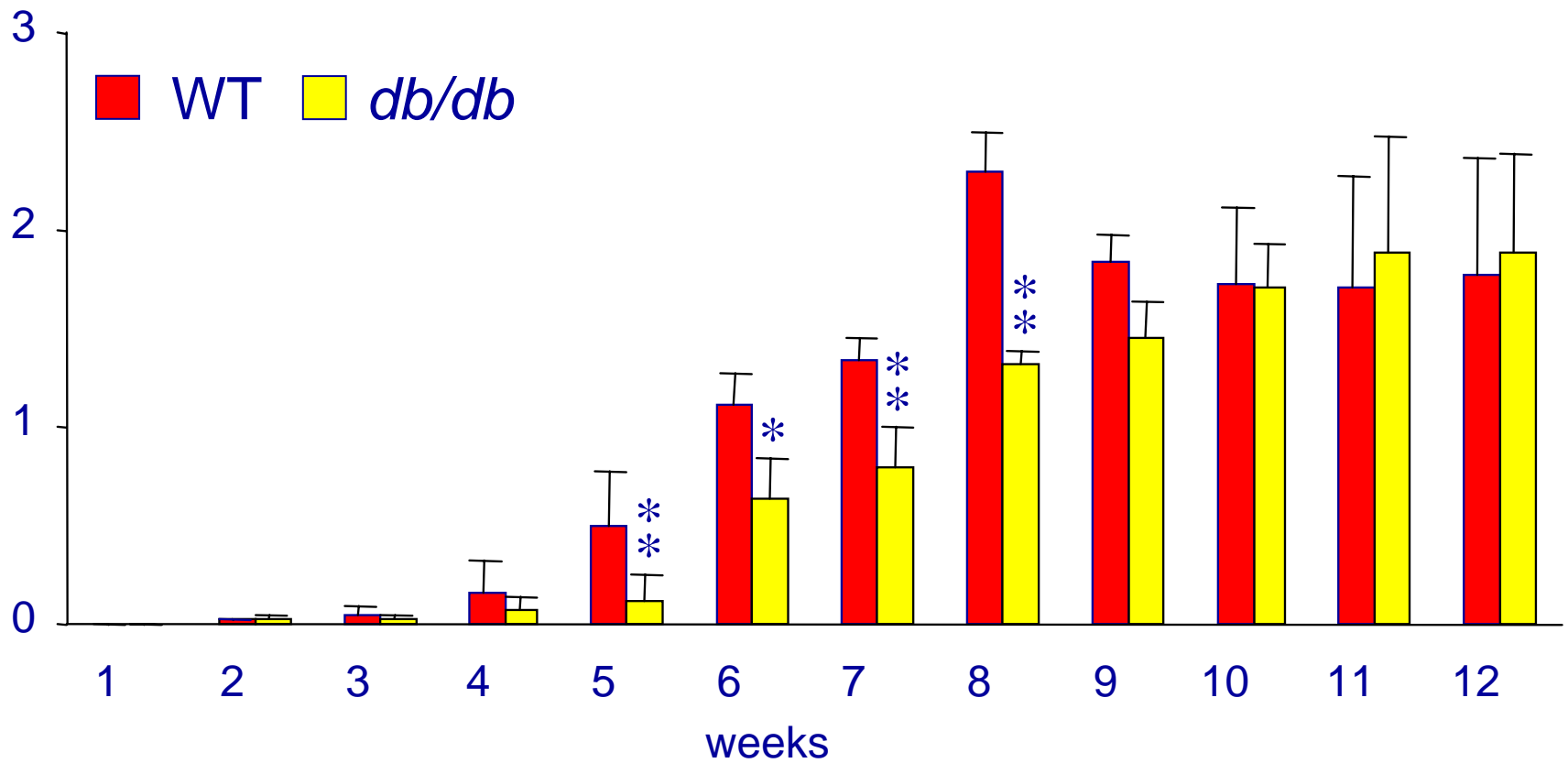
EFFECT OF SELECTIVE LEPTIN RECEPTOR DEFICIENCY ON CD45RB^{high} LYMPHOCYTES IN COLITIS INDUCTION



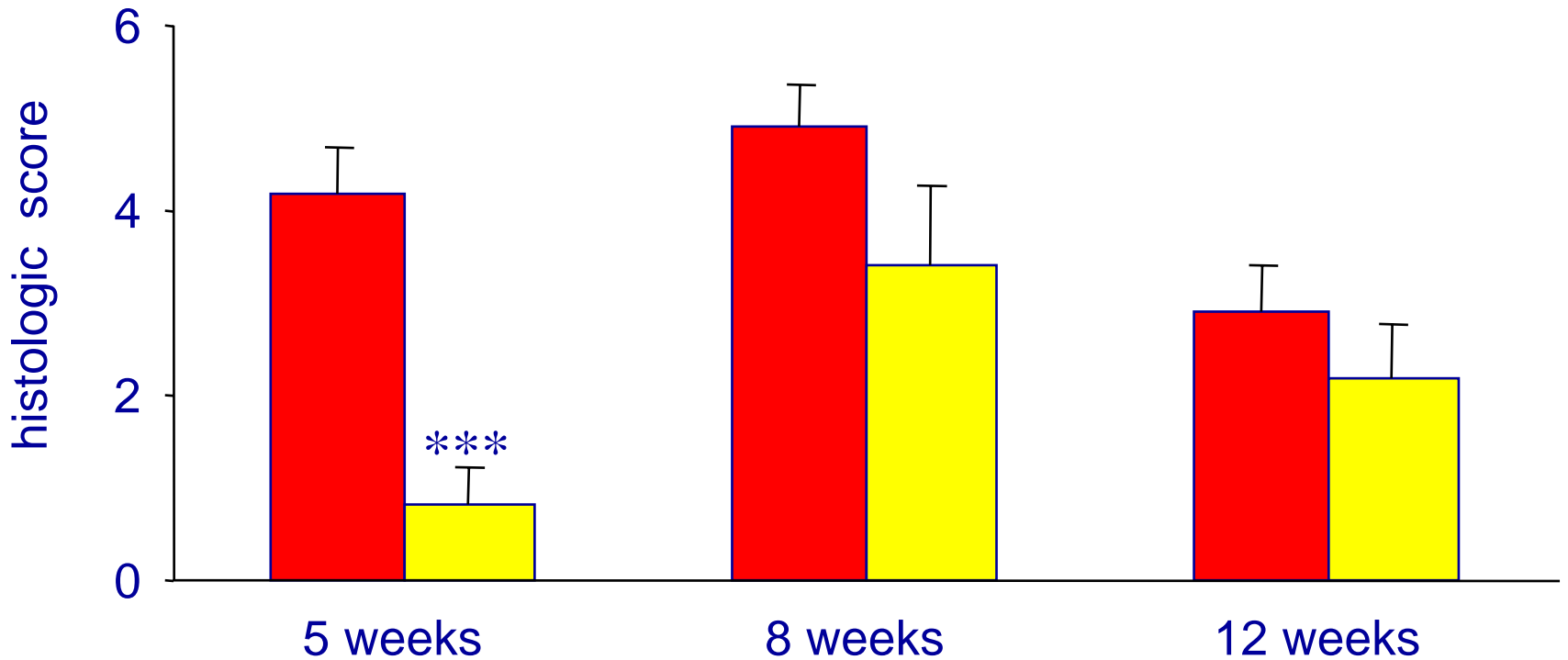
REDUCED EARLY DISEASE IN *scid* MICE RECEIVING *db/db* CELLS: SURVIVAL



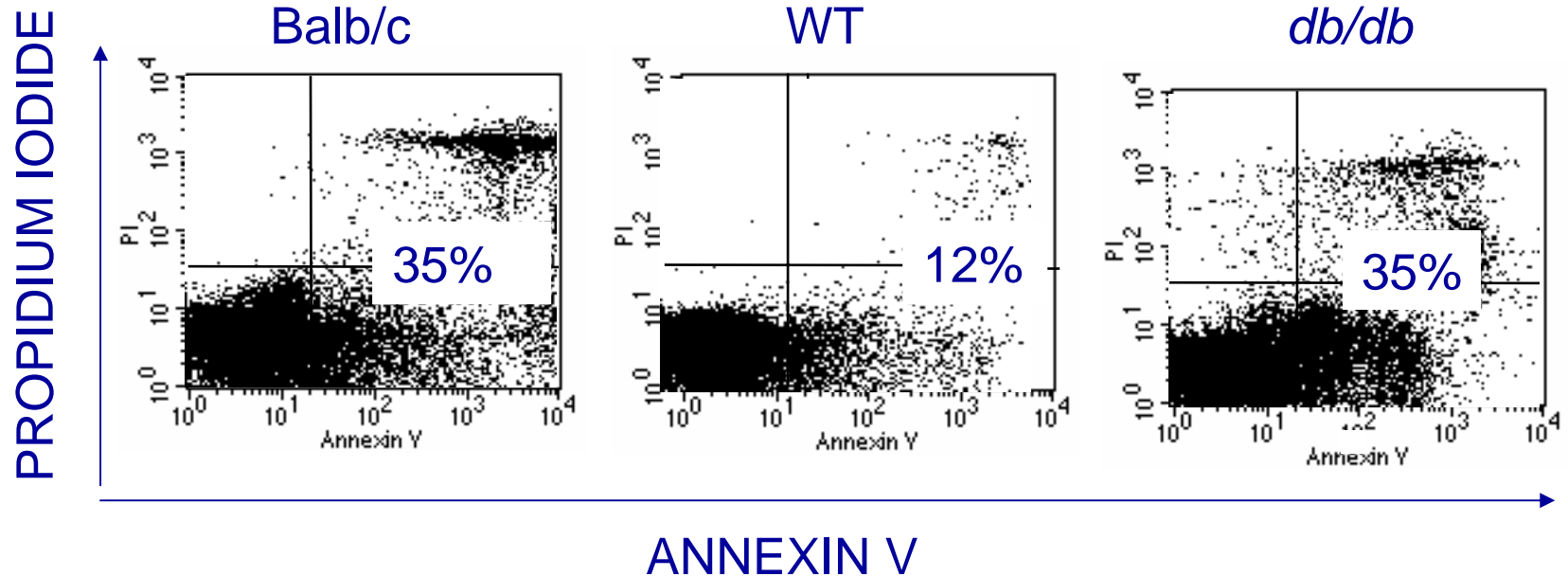
REDUCED EARLY DISEASE IN *scid* MICE
RECEIVING *db/db* CELLS:
DISEASE SCORE



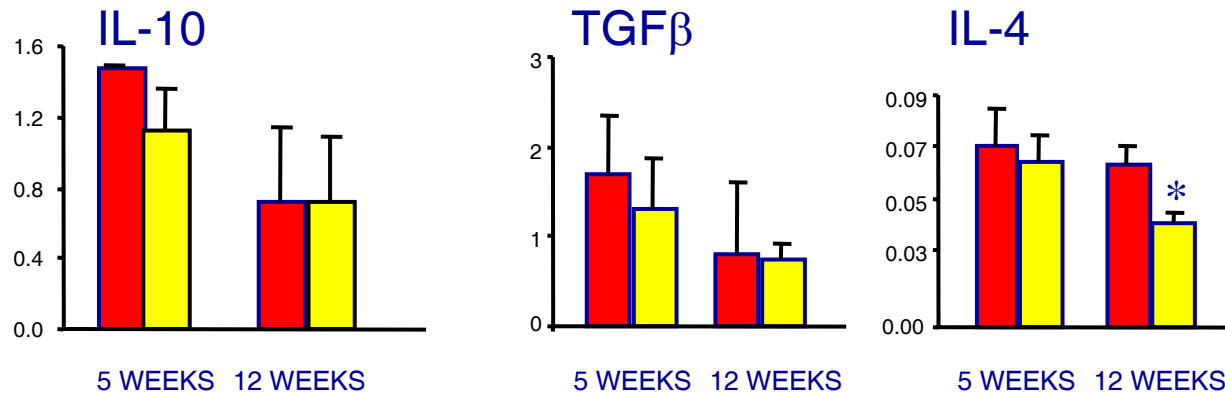
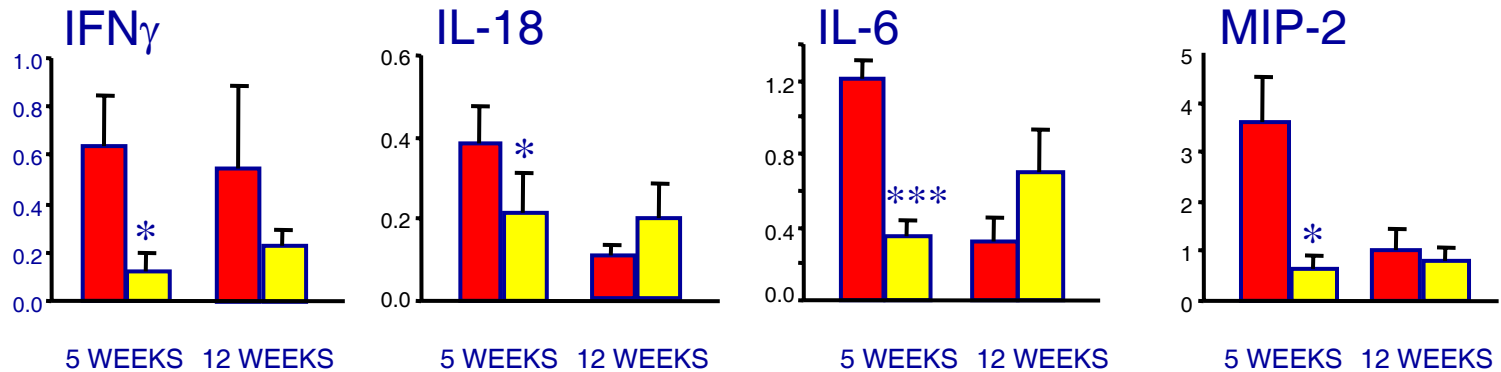
REDUCED EARLY DISEASE IN *scid* MICE
RECEIVING *db/db* CELLS:
HISTOLOGIC SCORE



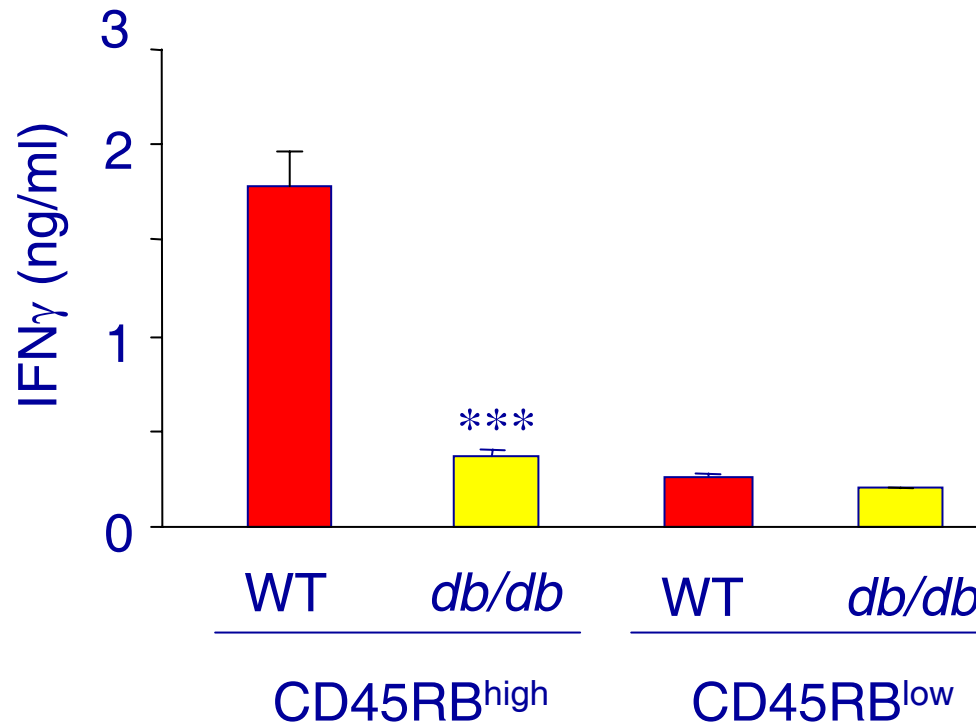
REDUCED EARLY APOPTOSIS IN LPL
OF *scid* MICE RECEIVING WT
BUT NOT *db/db* CELLS



REDUCED EARLY PRODUCTION OF PROINFLAMMATORY CYTOKINES IN LPL OF *scid* MICE RECEIVING *db/db* CELLS

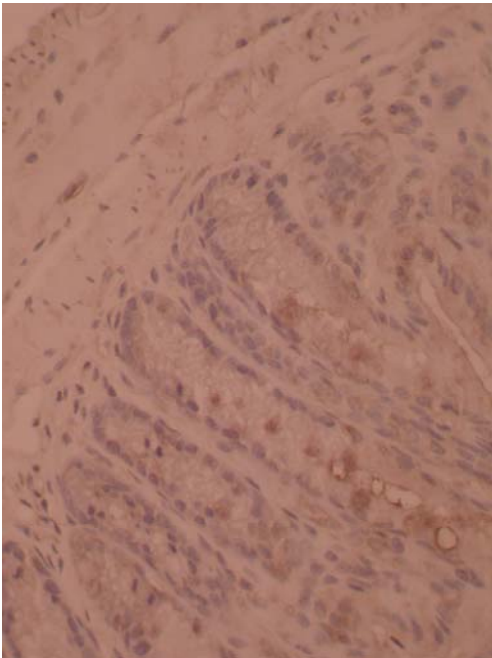


REDUCED IFN γ PRODUCTION IN FRESHLY ISOLATED *db/db* CD45RB^{high} CELLS

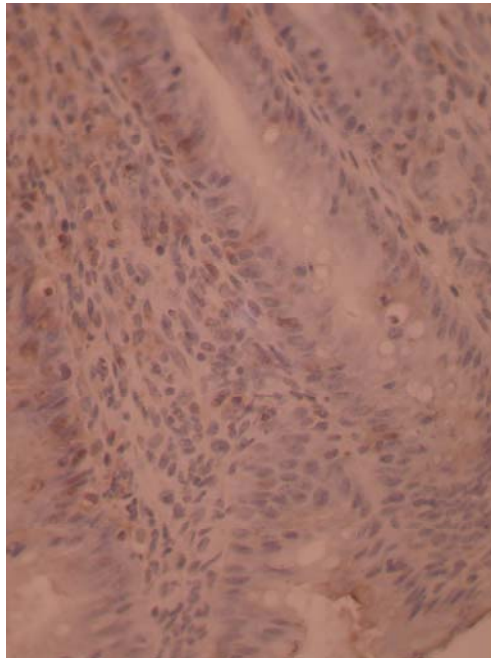


UPREGULATION OF PPAR γ IN THE COLON OF *scid* MICE RECEIVING *db/db* CD45RB^{high} CELLS

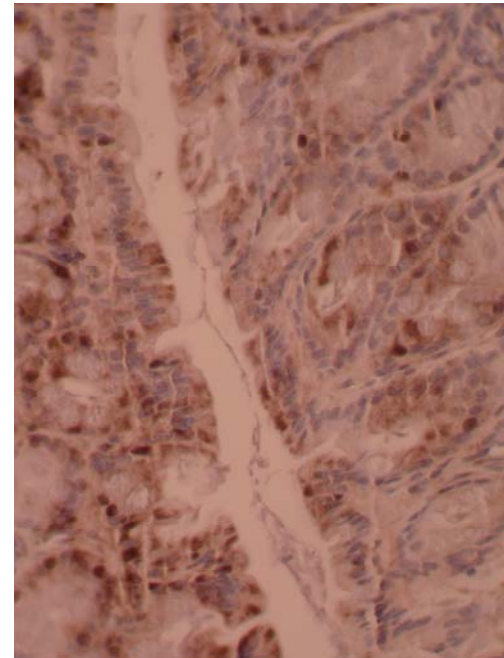
WT CONTROL



WT TRANSFER



db/db TRANSFER



SELECTIVE LACKING OF LEPTIN RECEPTORS
ON T LYMPHOCYTES
CONFERS EARLY PROTECTION IN
THE TRANSFER MODEL OF COLITIS

- REDUCED PRODUCTION OF PROINFLAMMATORY CYTOKINES
- MAINTENANCE OF HIGH LEVELS OF APOPTOSIS IN LPL
- REDUCED PRODUCTION OF IFN γ FROM CD45RB^{HIGH} CELLS
- INCREASED EXPRESSION OF PPAR γ