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SCHOOL OF
MEDICINE



NANYANG
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Imperial College
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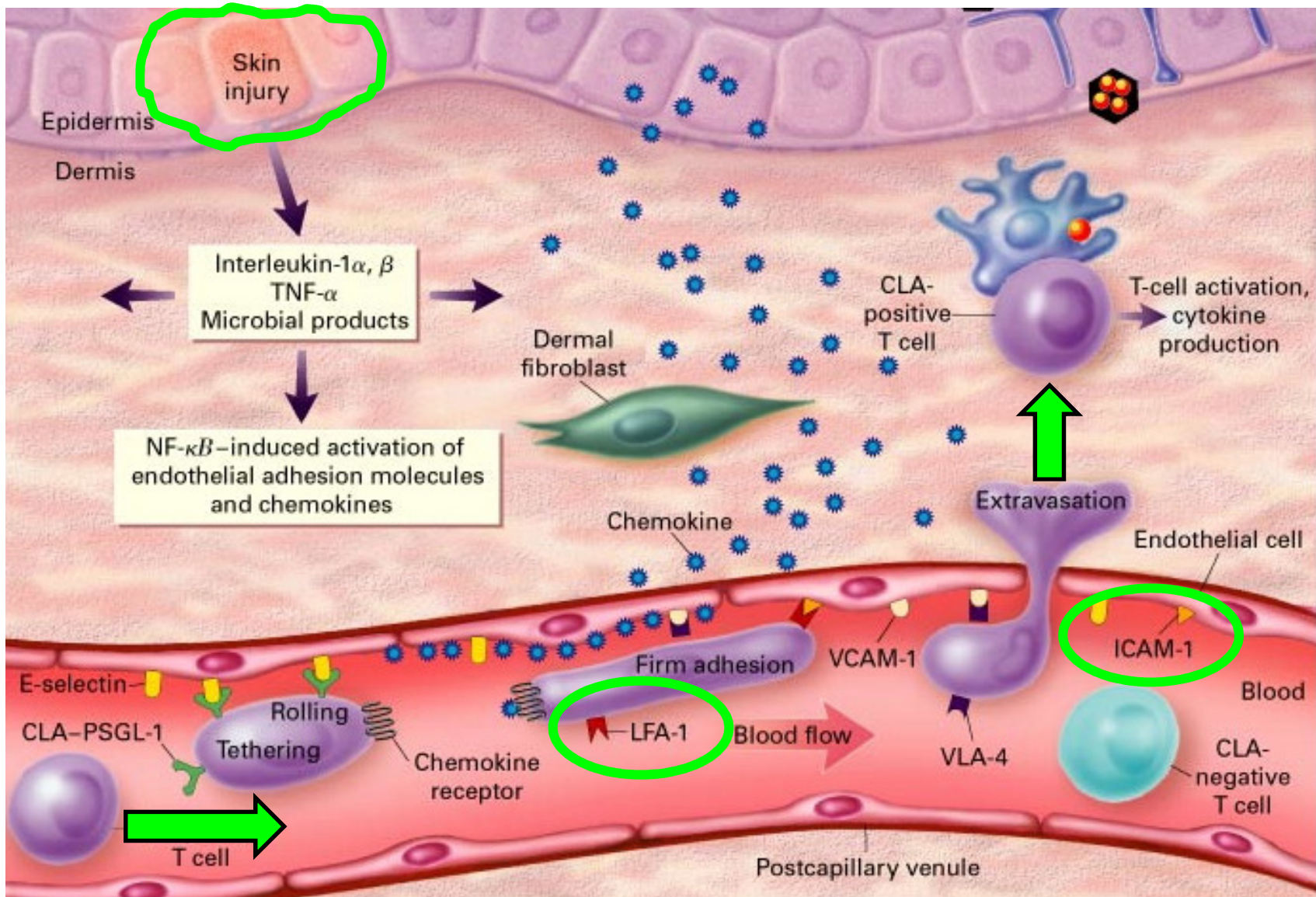
LFA-1/ICAM-1 ligation in T-cells influences both Notch and TGF- β pathways

Navin K. Verma

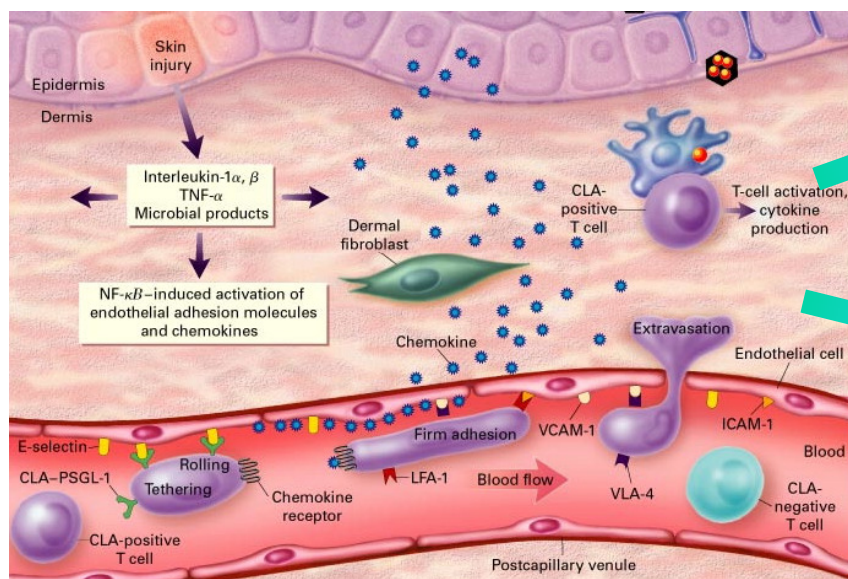
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REDEFINING MEDICINE, TRANSFORMING HEALTHCARE

T-cell migration into inflamed tissues



T-cell migration in health and diseases



Regulated T-cell migration



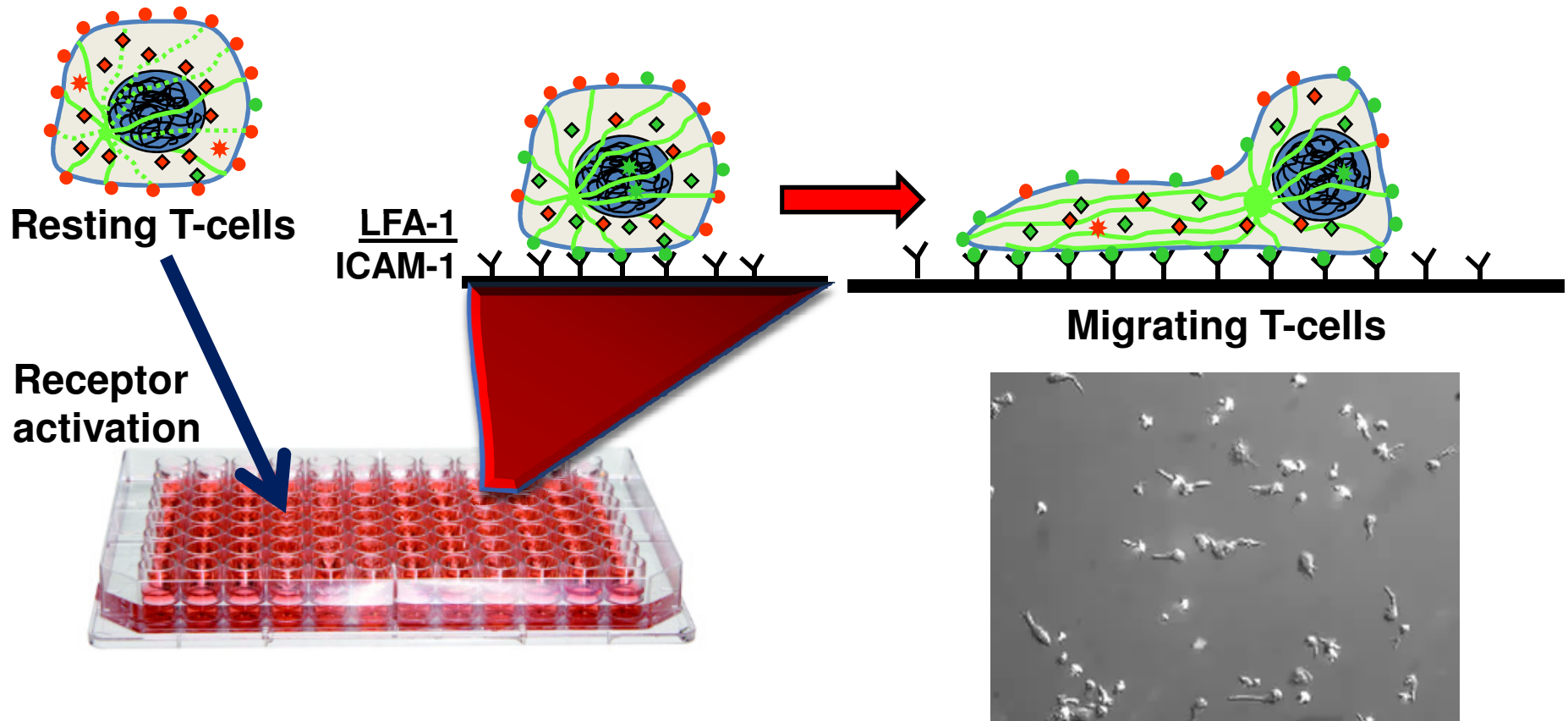
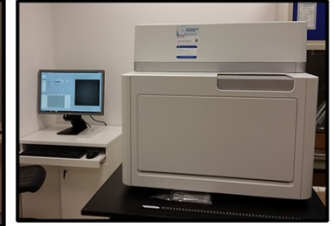
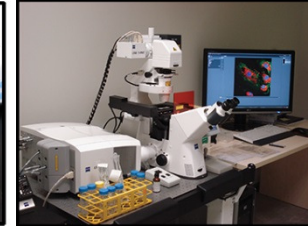
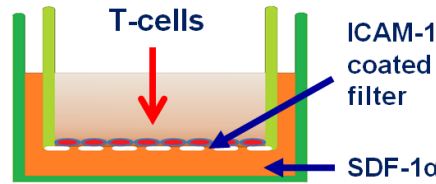
Immune response regulations

Uncontrolled T-cell trafficking

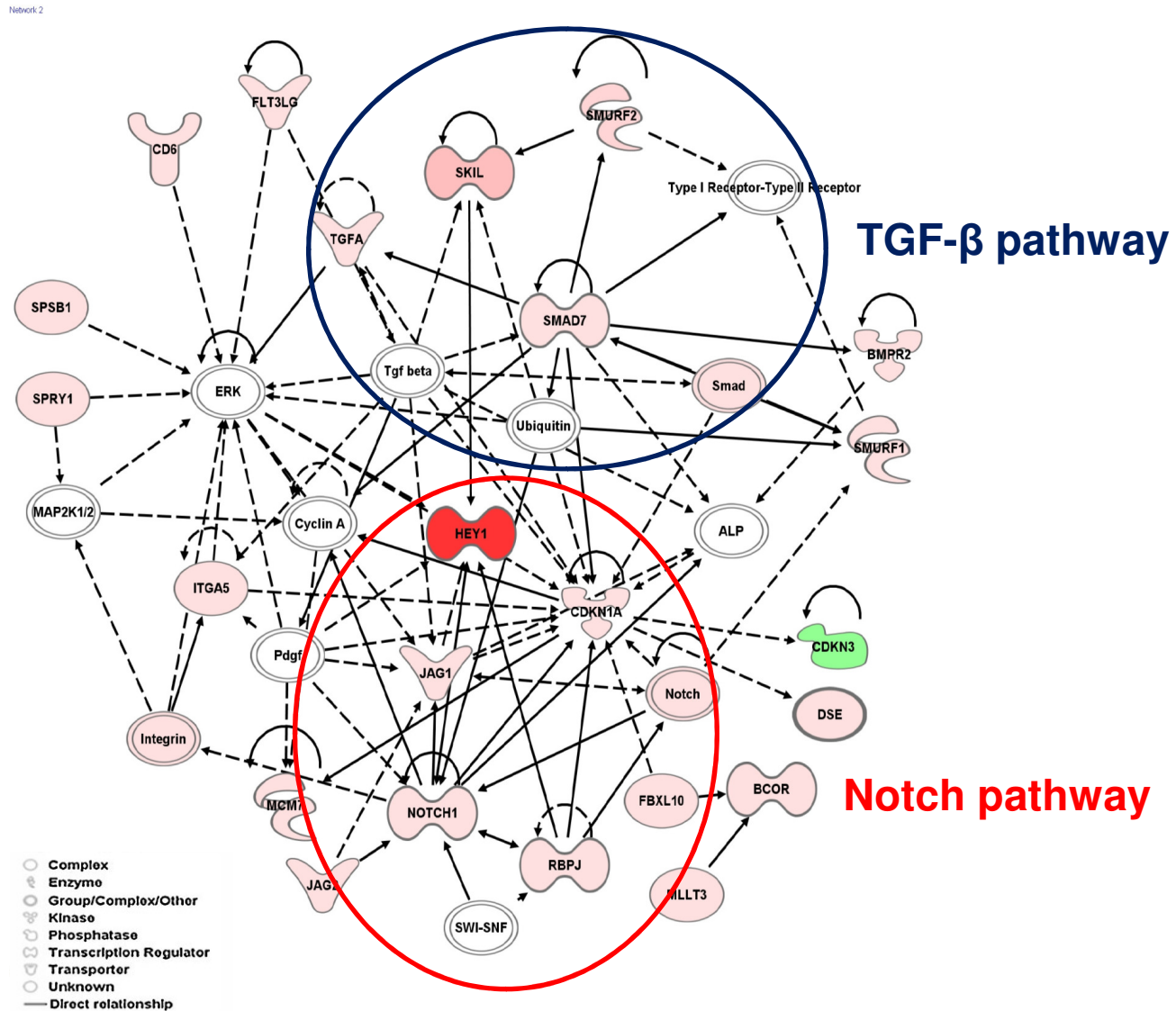
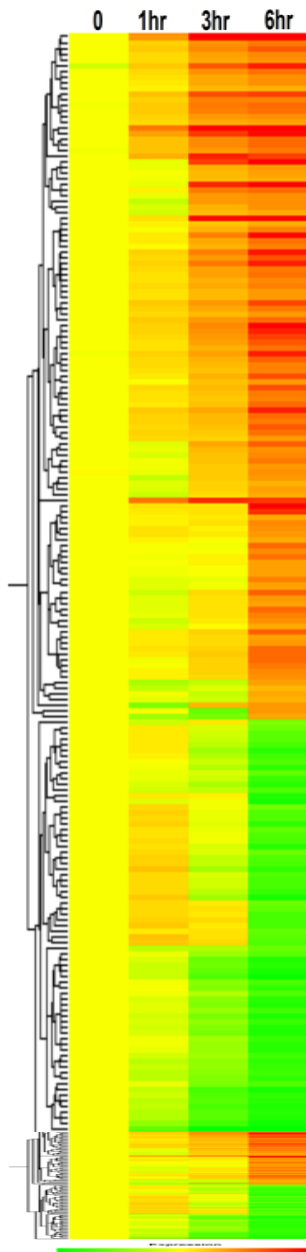


Chronic inflammatory diseases

Laboratory model of T-cell migration

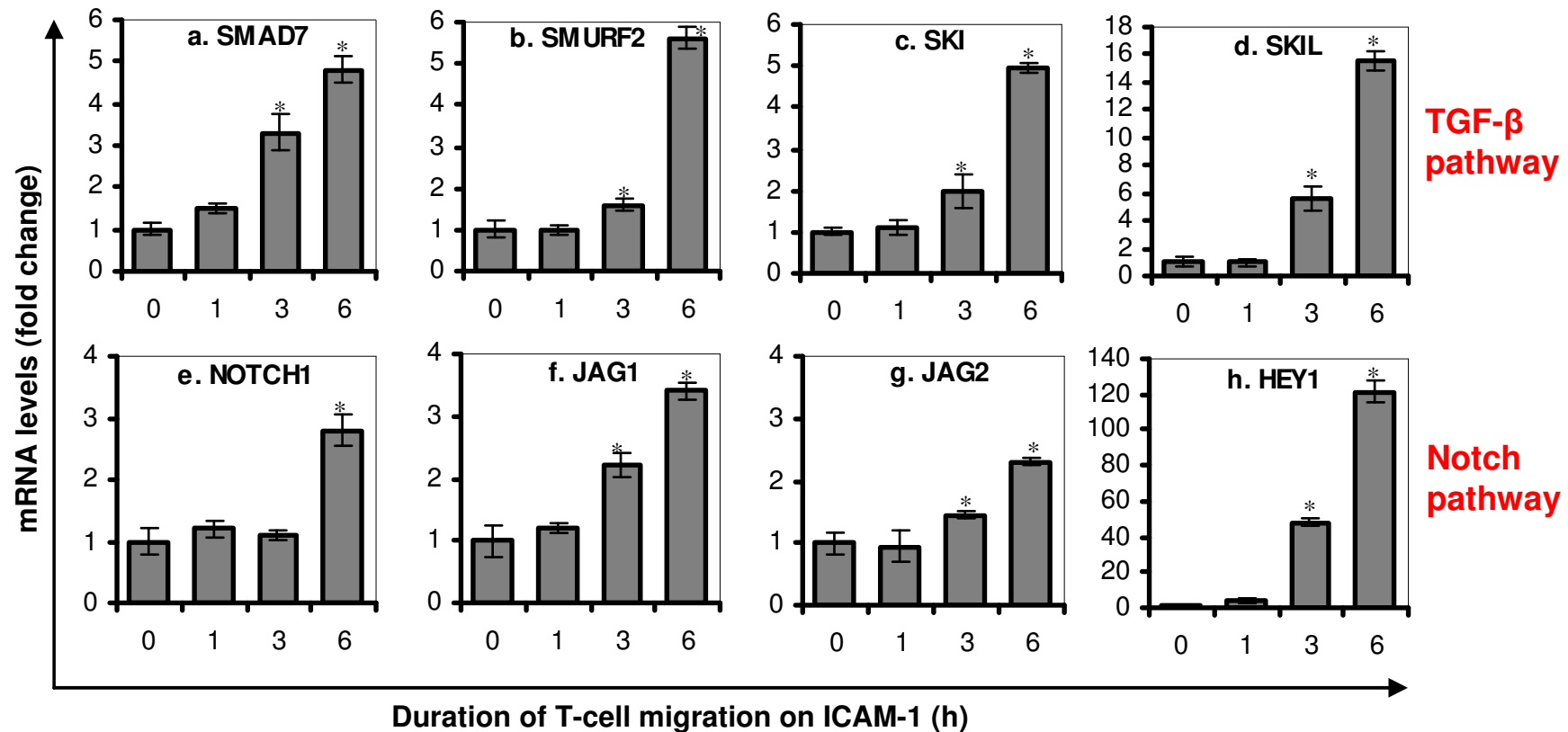


LFA-1/ICAM-1: changes in gene expression

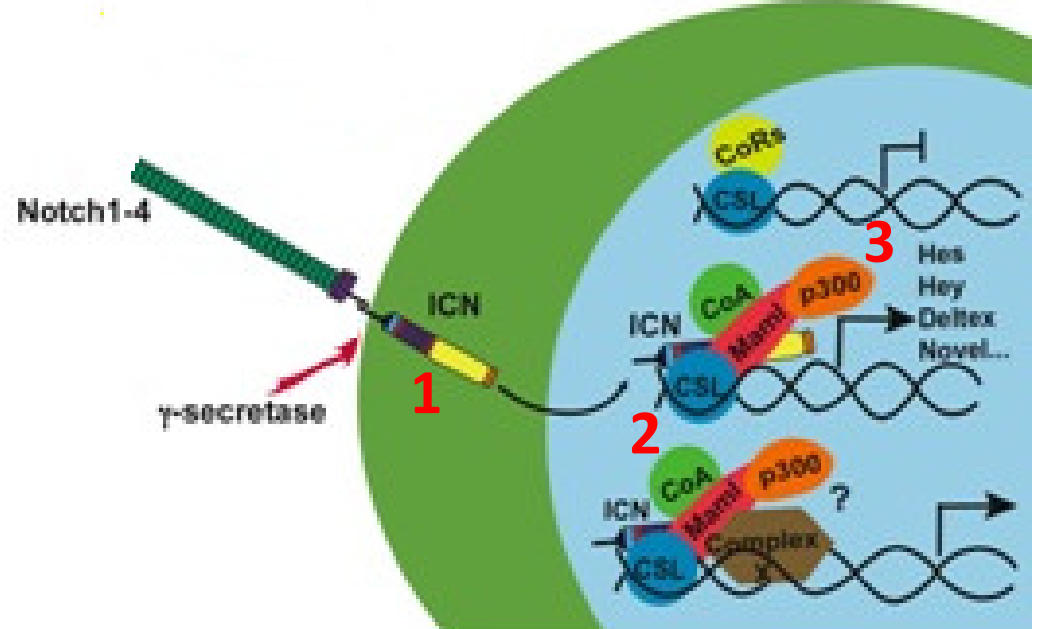
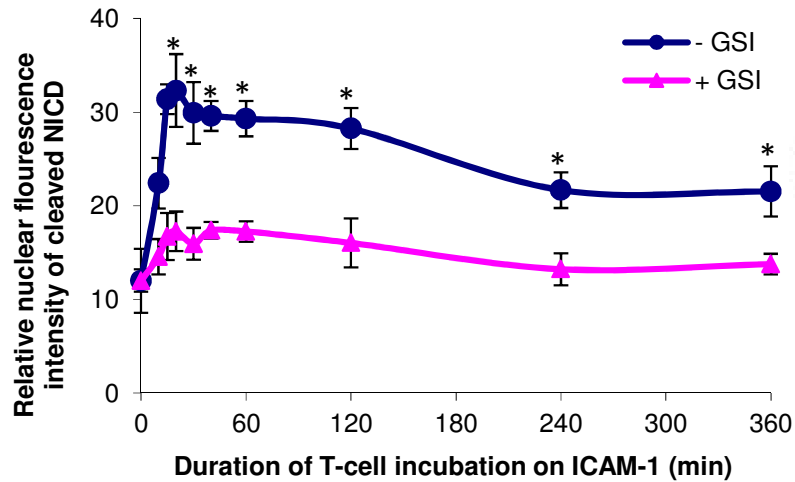
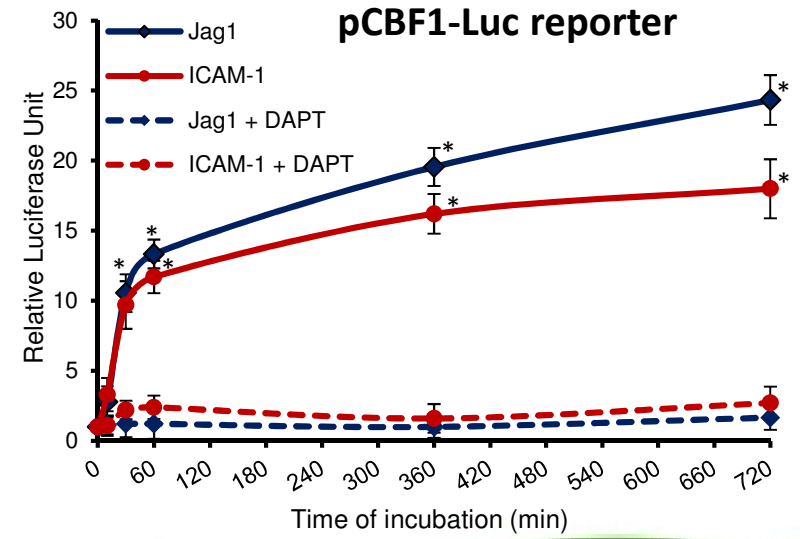
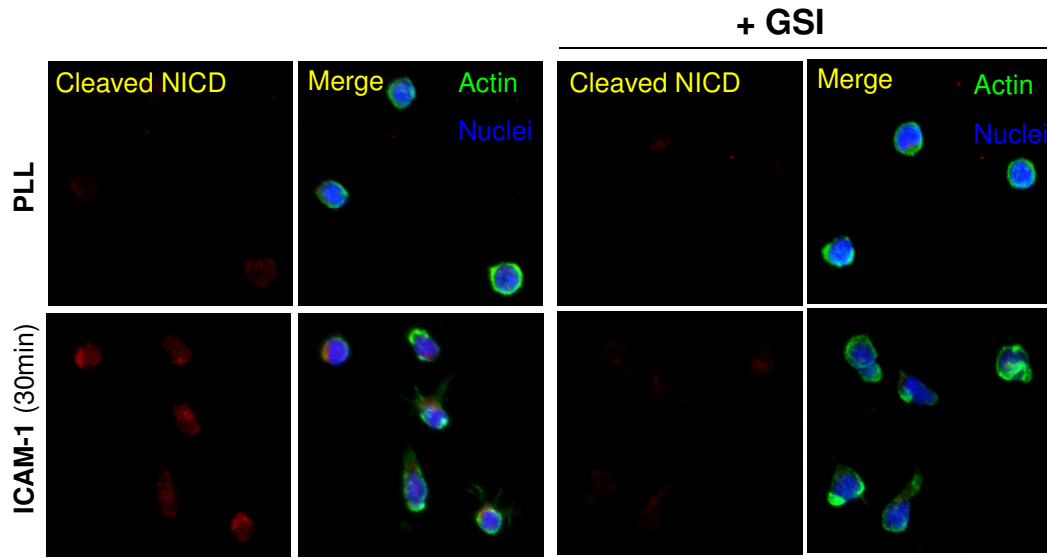


LFA-1/ICAM-1 up-regulates both TGF- β inhibitory molecules and Notch signalling proteins

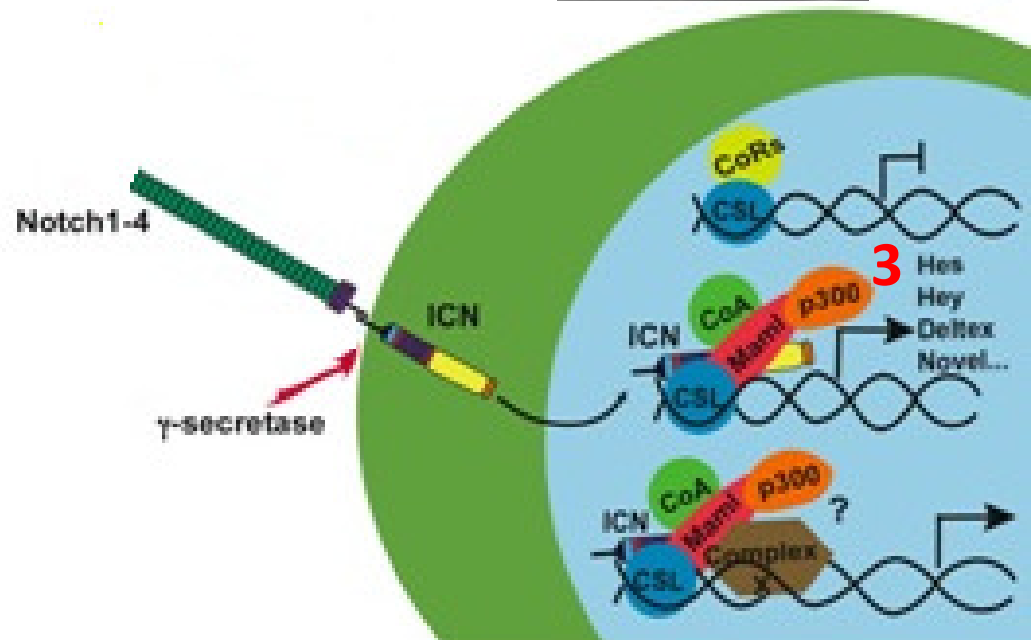
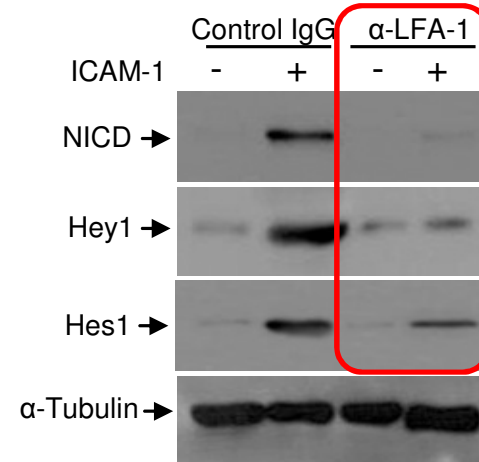
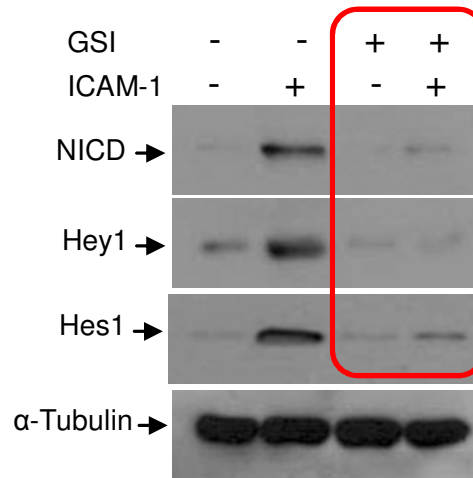
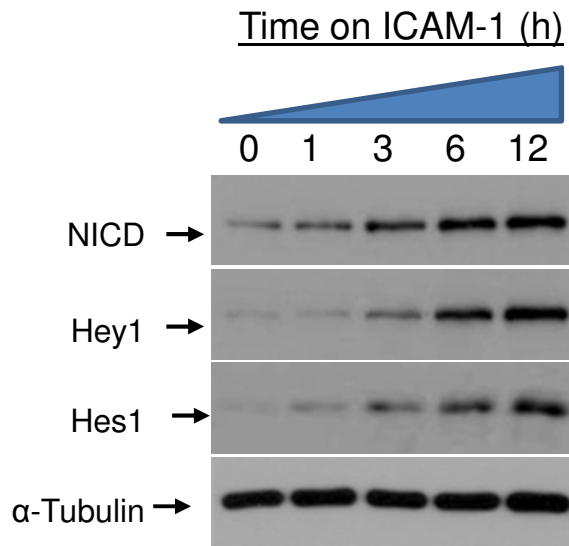
(verified by RT-qPCR)



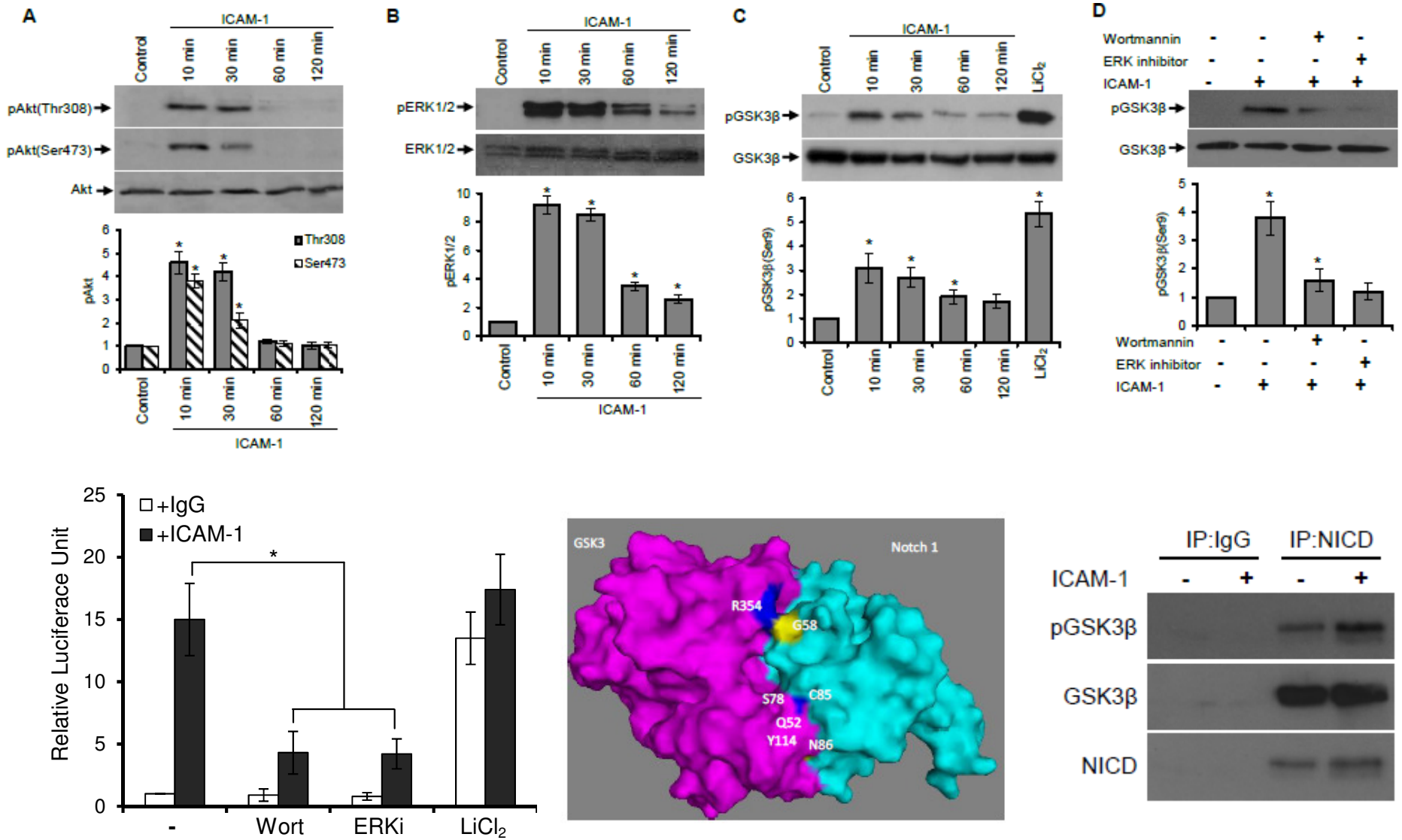
Notch Pathway: LFA-1/ICAM-1 activates Notch signalling



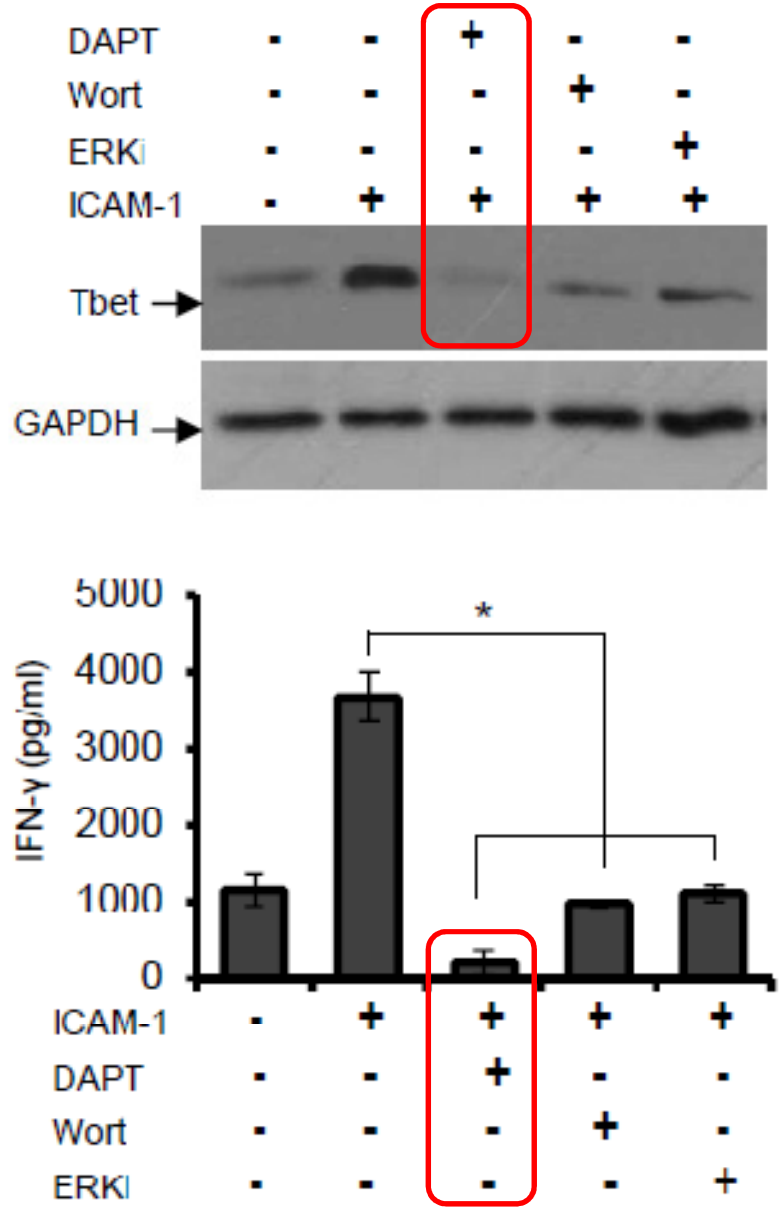
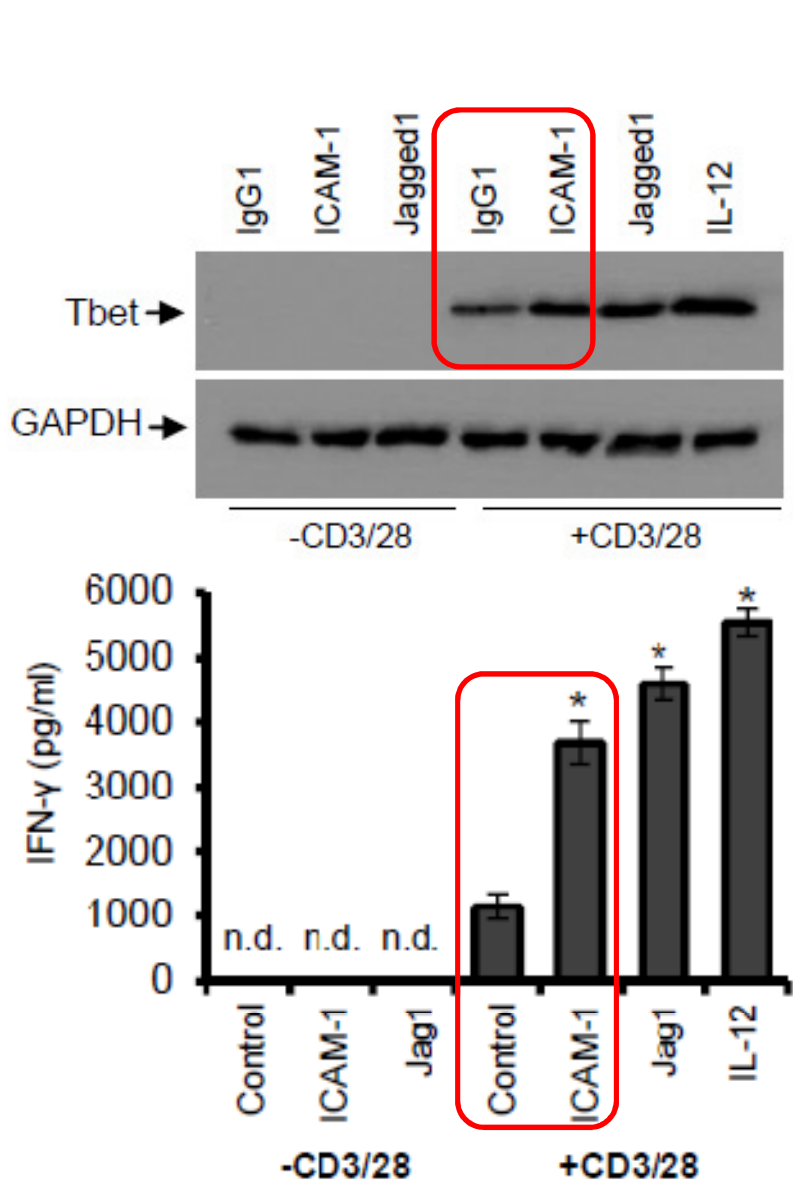
LFA-1/ICAM-1 activates Notch signalling



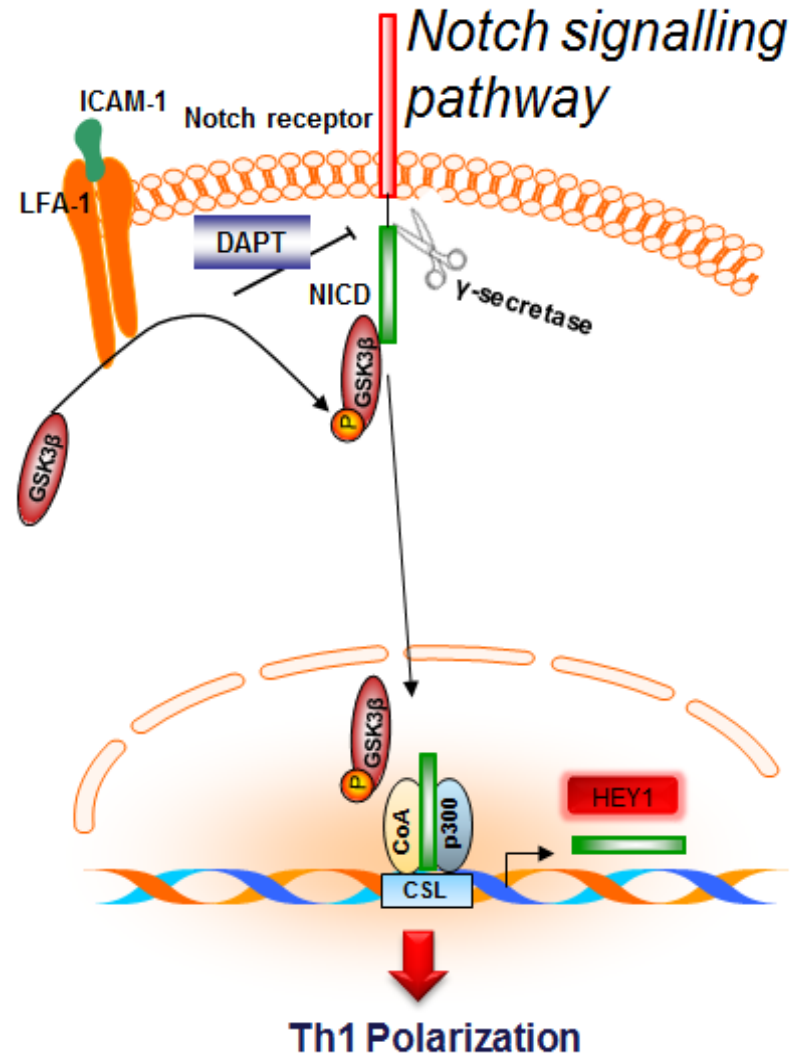
LFA-1 regulates Notch *via* Akt/ERK/GSK3 β signalling axis



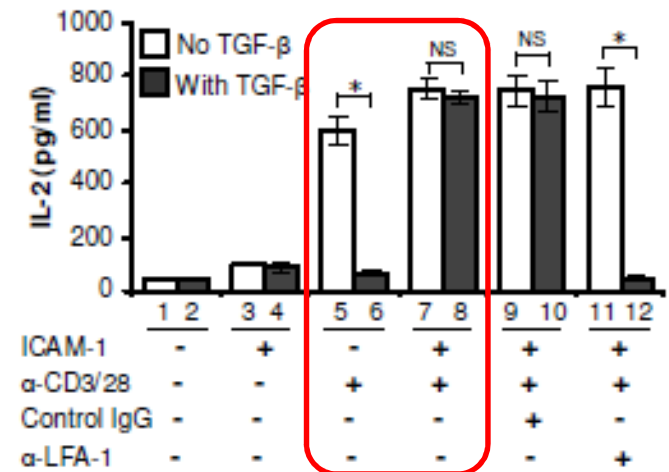
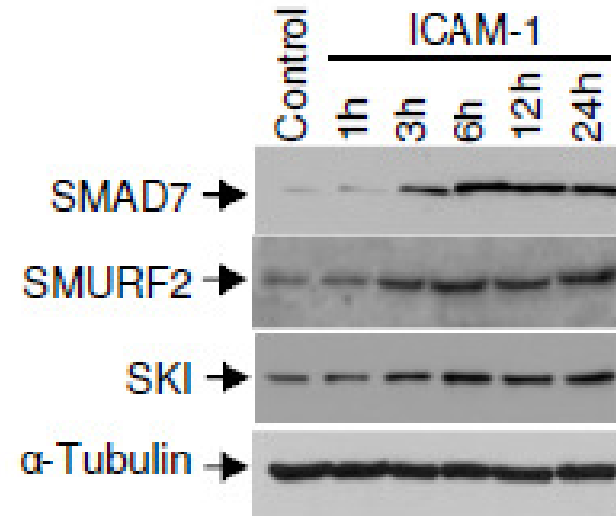
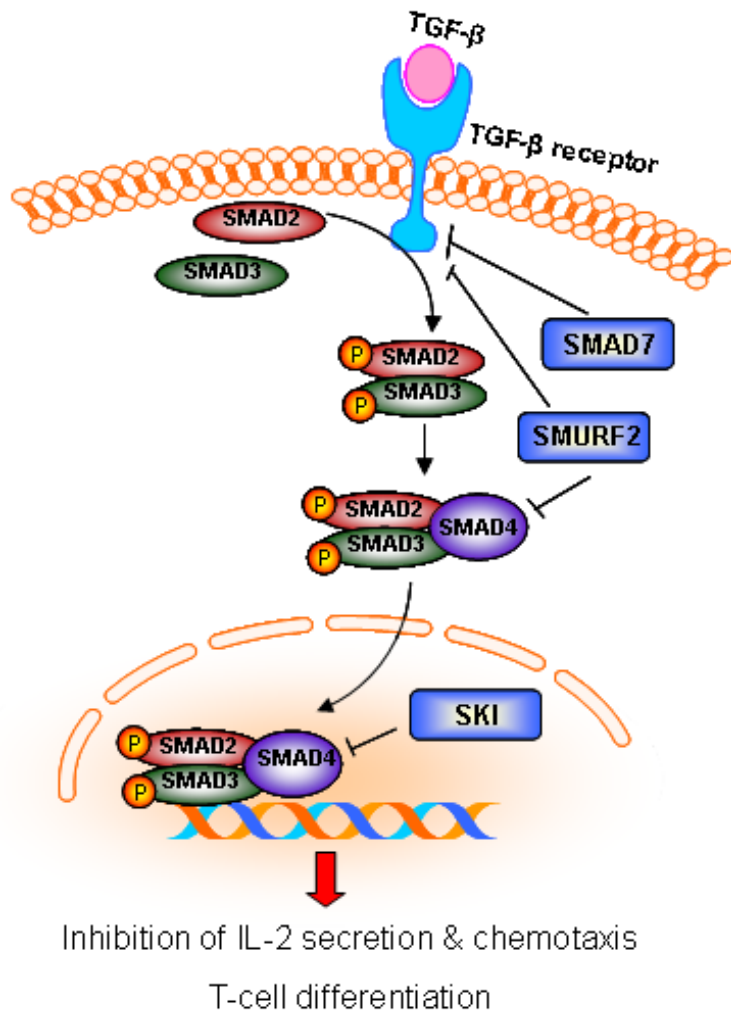
LFA-1/ICAM-1 favors Notch-dependent Th1 polarization



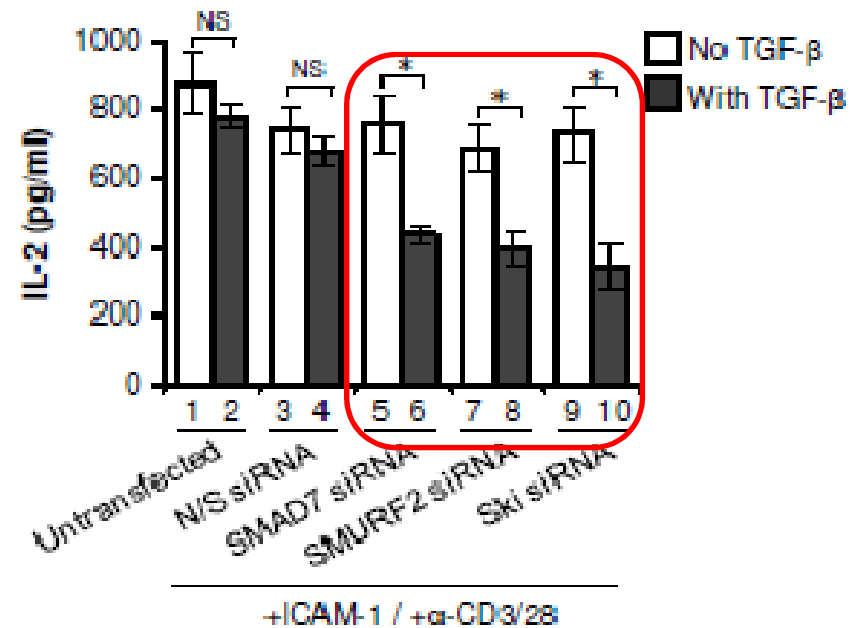
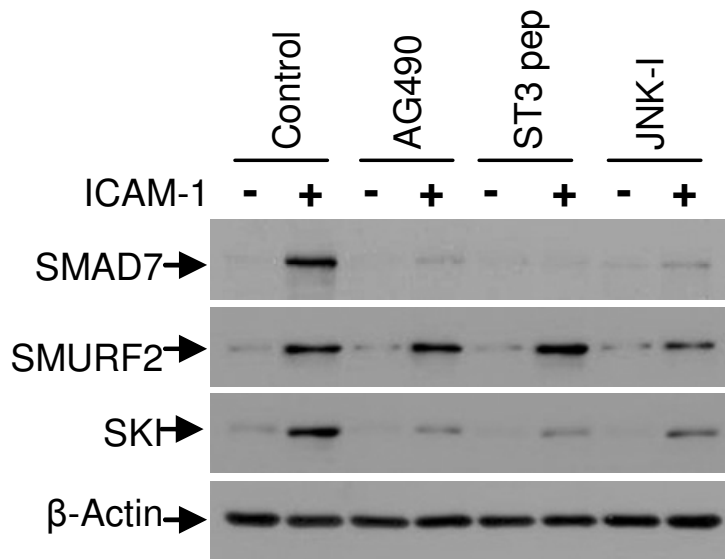
Notch Pathway summary



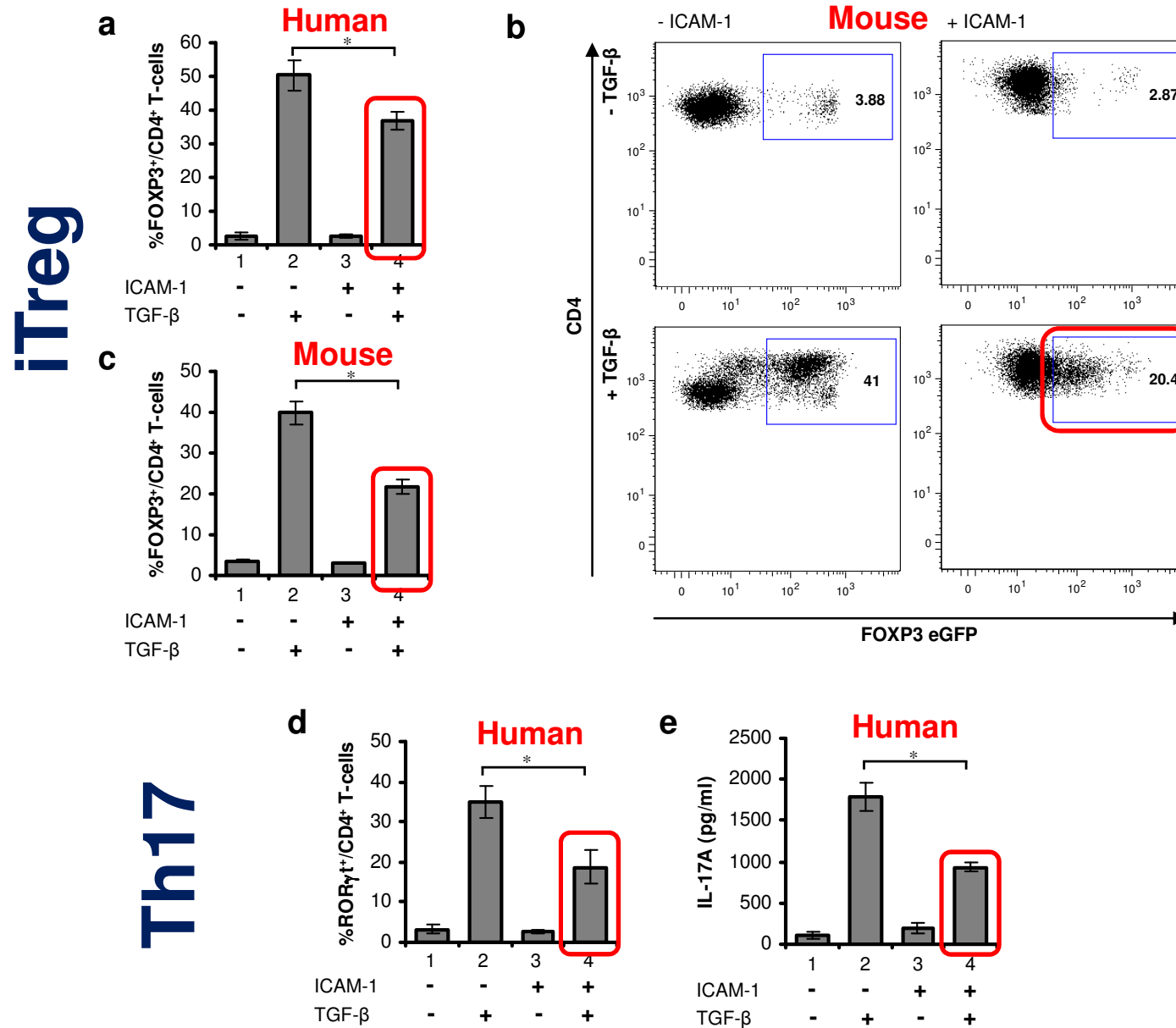
TGF- β pathway: LFA-1/ICAM-1 up-regulates TGF- β inhibitory molecules



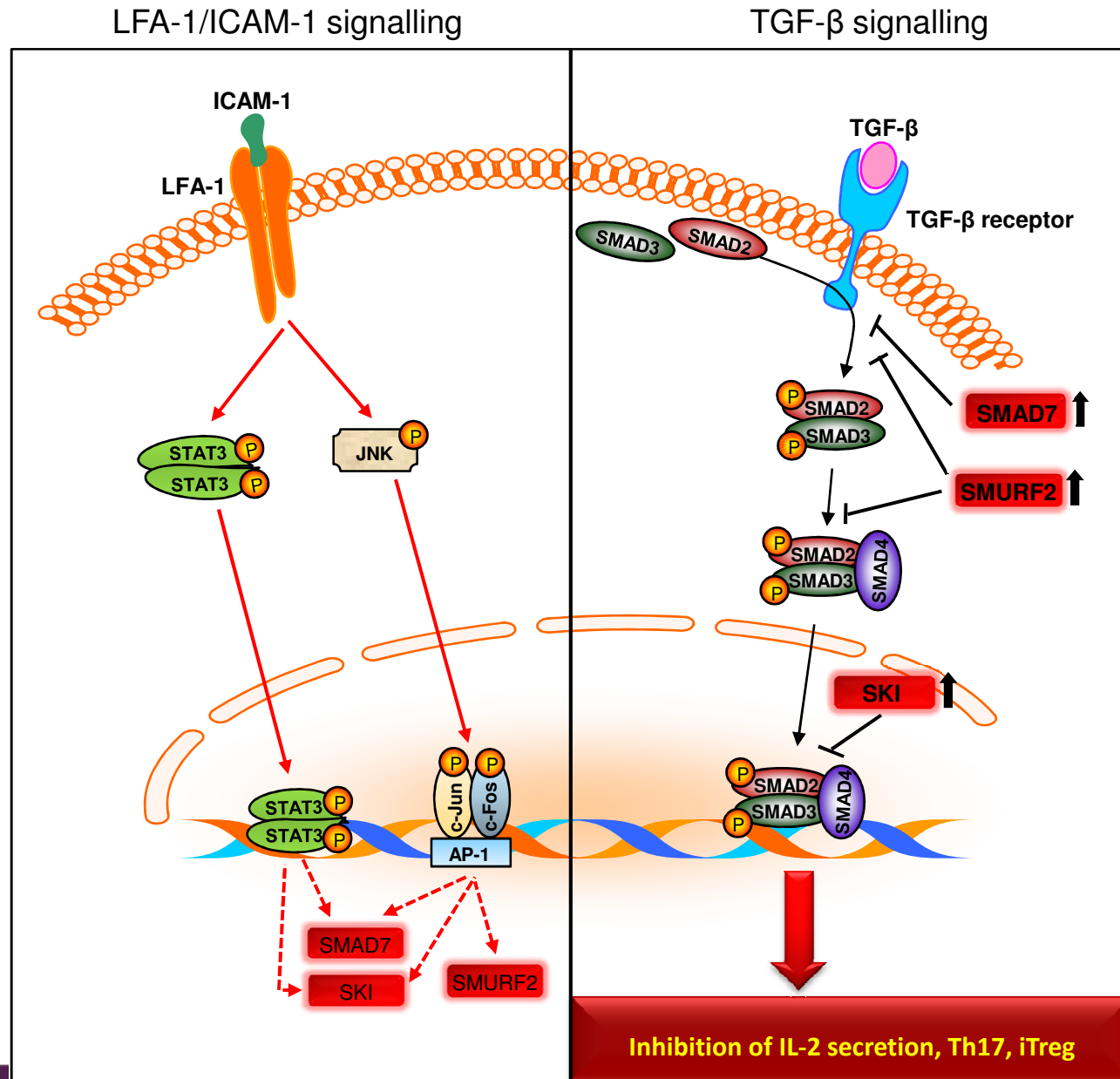
LFA-1/ICAM-1-induced TGF- β inhibitory pathway is dependent on STAT3 and/or JNK



LFA-1 stimulated T-cells are refractory to iTreg or Th17 differentiation



Summary: LFA-1/ICAM-1 induced TGF- β refractoriness in T-cells



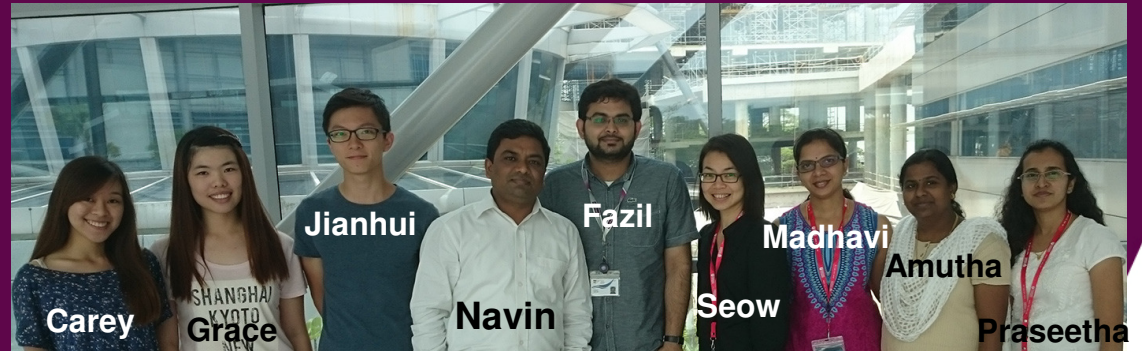
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Existing collaborations

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THANK YOU!