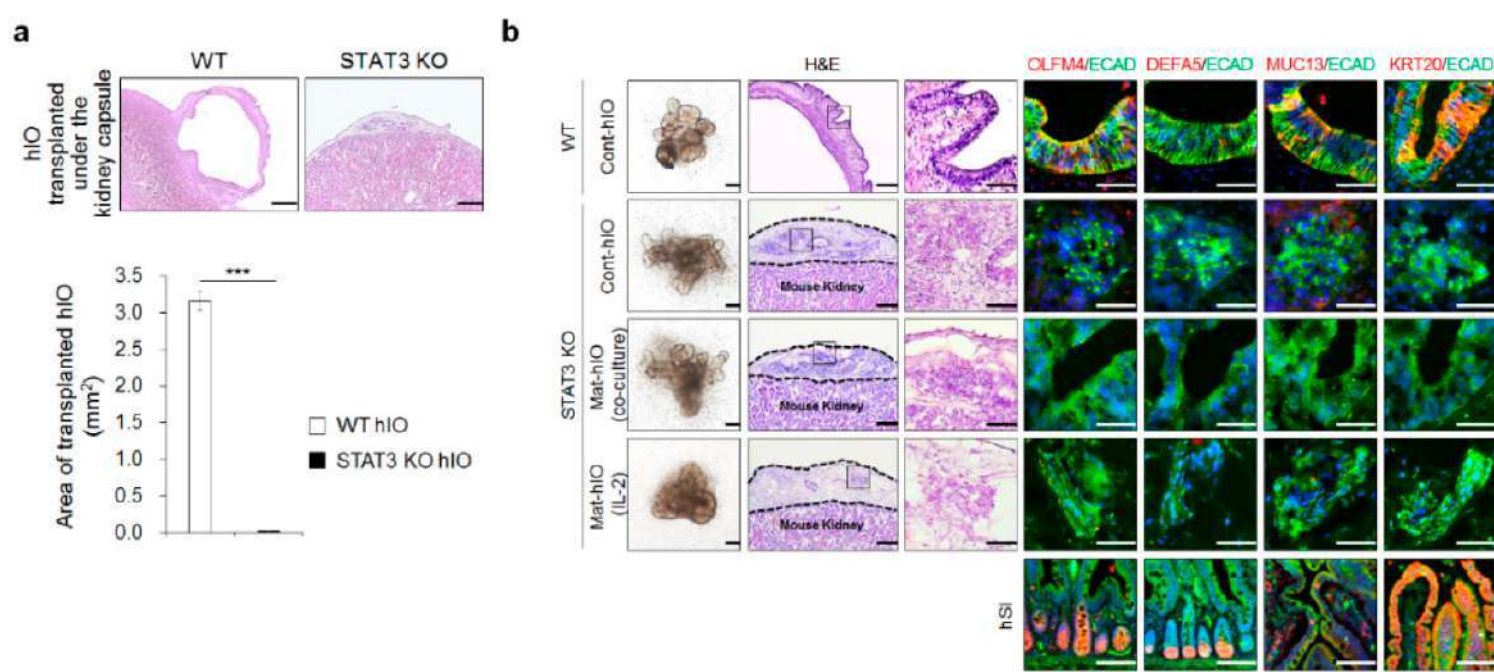


Blockade of STAT3 Causes Severe In Vitro and In Vivo Maturation Defects in Intestinal Organoids Derived from Human Embryonic Stem Cells

Kwang Bo Jung 1,2,+, Ohman Kwon 1, +, Mi-Ok Lee 1, +, Hana Lee 1,2, Ye Seul Son 1,2, Omer Habib 3, Jung-Hwa Oh 4, Hyun-Soo Cho 1,2, Cho-Rok Jung 1,2*, Janghwan Kim 1,2,* and Mi-Young Son 1,2,*

Human intestinal organoids (hIOs), which resemble the human intestine structurally and physiologically, have emerged as a new modality for the study of the molecular and cellular biology of the intestine in vitro. We recently developed an in vitro maturation technique for generating functional hIOs from human pluripotent stem cells (hPSCs). Here, we investigated the function of STAT3 for inducing in vitro maturation of hIOs. This was accompanied by the tyrosine phosphorylation of STAT3, whereas treatment with pharmacological inhibitors of STAT3 suppressed the phosphorylation of STAT3 and the expression of intestinal maturation markers. We generated and characterized STAT3 knockout (KO) human embryonic stem cell (hESC) lines using CRISPR/Cas9-mediated gene editing. We found that STAT3 KO does not affect the differentiation of hESCs into hIOs but rather affects the in vitro maturation of hIOs. STAT3 KO hIOs displayed immature morphologies with decreased size and reduced budding in hIOs even after in vitro maturation. STAT3 KO hIOs showed markedly different profiles from hIOs matured in vitro and human small intestine. Additionally, STAT3 KO hIOs failed to maintain upon in vivo transplantation. This study reveals a core signaling pathway consisting of STAT3 controlling the in vitro maturation of hIOs derived from hPSCs. [View Full-Text](#)



논문에서 control로 사용한 adult human SI, 어디서 구하지?

Easy to Get Human Tissue Sample!

Human Tissue Microarray & Slide

Tissue Slide (IHC Slide)

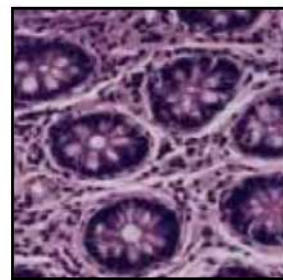
- Slide 하나 당 하나의 tissue, 총 5개 slide 제공

Large number of section- 400개 이상의 FFPE tissue slide

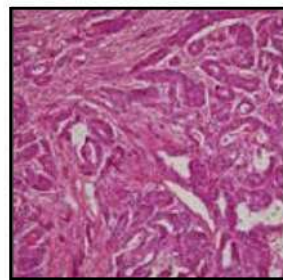
Experimental controls- 연구 질환의 negative control로 사용

질병 stage별 tissue 제공- 질병 단계에 따른 발현양 변화 확인

Easy & Short- Sampling ~ blocking 까지 완료. Ab만 있으면 실험 가능



Human Colon Tissue Slide (Normal)
Cat# NBP2-30177

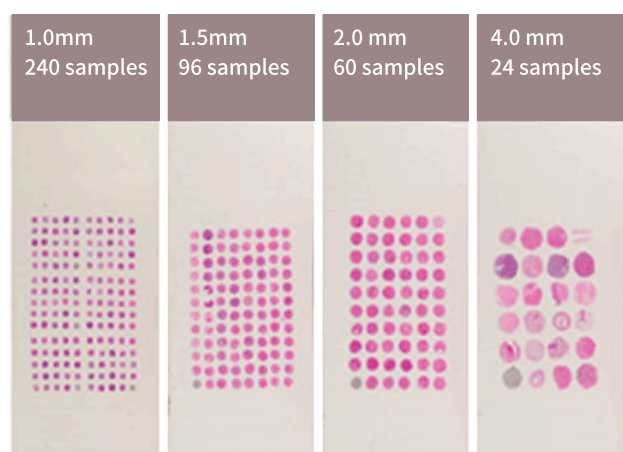


Human Colon Tissue Slide (Adenocarcinoma)
Cat# S165WO

[List 보러가기 >>](#)

Tissue Microarray (TMA)

- 하나의 slide에 동일한 tissue section을 많은 N수로 제공



High-throughput- 한 번의 실험으로 최대 75개 Data

Target screening- Disease 단계별 tissue를 이용해서 screening

Uniformed experiment- 동일한 condition에서 만들어진 tissue

Comparison- Tumor vs Normal in the same slide

Donor Information

Age	Sex	Diagnosis	History	Size(cm)	Diff.	TNM
80	F	Adenocarcinoma	14 months	6X4X3	Moderately	T3NOMO
80	F	Matched Normal Tissue				
60	M	Adenocarcinoma, tubular	1 months	4X3X3	Moderately	T2NOMO
60	M	Matched Normal Tissue				
53	M	Adenocarcinoma	0.7 months	3X3X2	Moderately	T2NOM1
53	M	Matched Normal Tissue				