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Supplemental information

Small intestine vs. colon ecology

and physiology: Why it matters

in probiotic administration

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Table S1. Non-exhaustive list of capsule systems for the collection of small intestinal samples

Technology name	Sampling activation	Sample collection mechanism	Comment	Reference
Automatische Darmkapsel	Timing mechanism	Passive influx		87
Microelectromechanical systems technology	Wireless	Microelectromechanical piston	Risk of downstream contamination	25,88
IntelliCap®	Wireless or at predefined pH	Microelectromechanical piston	Manufacturing discontinued	89
Ingestible osmotic pill	Dissolving of enteric coating in alkaline pH	Osmotic pressure		90
Intestine microbiota aspiration	Not given	Not given; no microelectromechanical technologies		25
3D printed acrylic capsule, fast-absorbing hydrogel and flexible PDMS membrane	Dissolving of enteric coating in alkaline pH	Expanding hydrogel		91

Table S2. Main advantages and disadvantages between mouse and pig as human models

	Advantages	Disadvantages	References
Mouse	Well characterised, transgenic and knockout mice, as well as chemically induced neoplastic and inflammatory disease models in mice	Large difference in anatomy and microbiota composition	94,113,117,133
Pig	Omnivorous animal with more similarities to humans than mice More invasive procedures are possible compared to	Anatomical and functional differences Relative lack of genetic models High cost of animal	115-117,121,134-137

	humans (euthanasia and sampling along GI tract, cannulation of healthy animals)	maintenance and husbandry Long reproductive cycles Long time to maturity	
Human	Gold standard	Ethical considerations Ileostomy patients may have altered gut function	