PROTEIN DIGESTION AND ABSORPTION Lumen Blood Tight junction Exogenous p rotein (dietary protein) Endogenous protein Tight junction Gastric acid secretion Basolateral Brush-border_ membrane membrane HCIÇ Small intestinal epithelial cell (Stomach) NaO Pancreatic secretion Na H⁺ CTRB1 0 (di, tri)-AA (di, tri)-AA Intracellular peptidases K01291.. Ма⁺ О АА Single AAs Ò (Small intestine) AA , anionic amino acids ${\rm AA}^0$, neutral amino acids AA , cationic amino acids Metabolism Alanine, aspartate and glutamate metabolism -O° Na+ Nondigestible peptides and proteins Dietary protein Pancreatic enzyme ്**റ്** Ca²⁺ K14211 Na' Sloughed epithelial cell Lysed bacteria o_{Na}+ AA⁰ K13781 Tyrosine metabolism Valine, leucine, and isoleucine degradation Fermentation by P, G, β-Α AA^0 colonic bacteria Tryptophan metabolism CSH 👌 PAT1 $\dot{\mathbf{O}}_{\mathrm{CO}_2}$ Propionate Butyrate Acetate O 2H2 **-О**+ Na AA, CssC Short-chain fatty acids (SCFA) AA⁺ AA(Distal colon) O CH4 Socaproate Isovalerate Tight junction **O**: O Ammonia 2-methylbutyrate Isobutyrate O Amines Branched-chain fatty acids (BCFA) O Phenols O Thiols Absorption by colonic epithelial cells O Indoles 04974 11/26/15 (c) Kanehisa Laboratories