BACTERIAL SECRETION SYSTEM Type IV Type VI Type I Type III Type II Type Va Vb Vc Intracellular toxins Cholera toxin, Exotoxin A Heat-labile (LT) toxin Cell wall-degrading enzymes Effector proteins DNA DNA-protein complexes RTX toxins HlyA, RtxA Proteases Effector proteins Needle proteins Components of the translocon YopB, YopD, LcrV Effector proteins Adhesins, proteases, toxins. Effector proteins Lipases S-layer proteins Host cell Host cell $T_{\text{(grG)}}$ Plasma Plasma membrane membrane T-pilus <mark>YscF</mark> Ysc⊕PX VirB⊉ Extracellular ∜irB3, milieu $(Y_{sc}W)$ Outer membrane TolC GspD VirB7, 9 Lip VirB1 $^{ m GspC}_{ m GspGHIJK}$ Periplasm HlyD VirB6, 8, 10 IcmF, DotU Twin arginine targeting (Tat) Sec-SRP YscJ SecDEFGY YajCYidC Inner GspFLM TatABCE HlyB ClpV PpkA membrane VirB4(VirB11 |VirD4 YscVURTS (GspO)ĹFtsY. Fha1 YscN YscQL GspE (SecA) Bacterial cytoplasm PppA ၜ 0 ာ ကြား 0 ATP ATP ATP ATP ATP ATP ATP ATP ffh SecB Type VI Type III Type IV Type I Type II Type Va Vb Vc Outer membrane protein (OMP) Needle OMP Periplasmic protein Secreted substrate Secretin K11903 K04059 K02465 K11016 K03198 K04056 K04057 K03197 K03200 Membrane fusion protein OMP Surface/pilus protein K11906 K03219 IMP K02452 K02456 OMP K03202 ABC transporter OMP Secretin K04058 K02459 K03203 K11891 OMP IMP IMP Inner membrane protein (IMP) K03222 K03226 K03227 K02460 K02462 K03196 K11907 K02461 ATPase ATPase K03228 K11915 K03229 K11912 K11913 ATPase Regulatory protein ATPase Leaderpeptidase K02464 ATPase-associated rootein K03225 K03223 Sec-SRP Twin arginine targeting (Tat) IMP K03075 IMP ATPase Secretion monitor SRP receptor Targeting protein

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