

REFERENCES

- 1 Lightner DV, Redman RM, Bell TA. Infectious hypodermal and hematopoietic necrosis, a newly recognized virus disease of penaeid shrimp. *Journal of Invertebrate Pathology*. 1983;42(1):62-70.
- 2 Chayaburakul K, Lightner DV, Sriurairattana S, Nelson KT, Withyachumnarnkul B. Different responses to infectious hypodermal and hematopoietic necrosis virus (IHHNV) in *Penaeus monodon* and *P. vannamei*. *Diseases of Aquatic Organisms*. 2005;67:191–200.
- 3 Bonami JR, Marl J, Brehelin M. Purification and characterization of the IHHNV of penaeid shrimps. *Journal of General Virology*. 1990;71:2657-2664).
- 4 Shike H. Infectious hypodermal and hematopoietic necrosis virus of shrimp is related to mosquito brevidensoviruses. *Virology*. 2000;277(1):167-77.
- 5 Motte E. Prevention of IHHNV vertical transmission in the white shrimp *Litopenaeus vannamei*. *Aquaculture*. 2003;219(1-4):57-70.
- 6 Montgomerybrock D, Tacon A, Poulos B, Lightner D. Reduced replication of infectious hypodermal and hematopoietic necrosis virus (IHHNV) in *Litopenaeus vannamei* held in warm water. *Aquaculture*. 2007;265(1-4):41-8.
- 7 Ho T, Yasri P, Panyim S, Udomkit A. Double-stranded RNA confers both preventive and therapeutic effects against *Penaeus stylirostris* densovirus (PstDENV) in *Litopenaeus vannamei*. *Virus Research*. 2011;155(1):131-6.
- 8 Gallwitz D, Donath C, Sander C. A yeast gene encoding a protein homologous to the human c-has/bas proto-oncogene product. *Nature*. 1983;306(5944):704-7.
- 9 Armstrong J. How do Rab proteins function in membrane traffic? *The International Journal of Biochemistry & Cell Biology*. 2000;32(3):303-7.
- 10 Stenmark H, Olkkonen V. The Rab GTPase family. *Genome Biology*. 2001;2(5):1-7.
- 11 Zerial M, McBride H. Rab proteins as membrane organizers. *Nature Reviews Molecular Cell Biology*. 2001;2(2):107-17.

- 12 Echard A, Opdam FJM, de Leeuw HJPC, Jollivet F, Savelkoul P, Hendriks W, et al. Alternative splicing of the human Rab6A gene. *Molecular Biology of the Cell*. 2000;11:3819–3833.
- 13 Chavrier P, Gorvel J-P, Stelzer E, Simons K, Gruenberg J, Zerial M. Hypervariable C-terminal domain of Rab proteins acts as a targeting signal. *Nature*. 1991;353(6346):769-72.
- 14 Schimmoller F, Simon I, Pfeffer SR. Rab GTPases, directors of vesicle docking. *The Journal of Biological Chemistry*. 1998;273(35):22161-4.
- 15 Gonzalez L, Scheller RH. Regulation of membrane trafficking: structural insights from a Rab/effector complex. *Cell*. 1999;96(6):755-8.
- 16 Karin Mohrmann PvdS. Regulation of membrane transport through the endocytic pathway by RabGTPases. *Molecular Membrane Biology*. 1999;16(1):81-7.
- 17 Plutner H, Cox AD, Pind S, Khosravi-Far R, Bourne RJ, Schwaninger R, et al. Rab1b regulates vesicular transport between the endoplasmic reticulum and successive golgi compartments. *The Journal of Cell Biology*. 1991;115:31-43.
- 18 Tisdale EJ, Bourne JR, Khosravi-Far R, Der CJ, Balch WE. GTP-binding mutants of Rab1 and Rab2 are potent inhibitors of vesicular transport from the endoplasmic reticulum to the Golgi complex. *The Journal of Cell Biology*. 1992;119(4):749-61.
- 19 Davidsonz HW, Balch WE. Differential inhibition of multiple vesicular transport steps between the endoplasmic reticulum and trans golgi network. *The Journal of Biological Chemistry* .1993;25(6):4216-22.
- 20 Gorvel J-P, Chavrier P, Zerial M, Gruenberg J. Rab5 controls early endosome fusion *in vitro*. *Cell*. 1991;64(5):915-25.
- 21 Bucci C, Parton RG, Mather IH, Stunnenberg H, Simons K, Hoflack B, et al. The small GTPase Rab5 functions as a regulatory factor in the early endocytic pathway. *Cell*. 1992;70(5):715-28.
- 22 Van der Sluijs P, Hull M, Webster P, Mâle P, Goud B, Mellman I. The small GTP-binding protein Rab4 controls an early sorting event on the endocytic pathway. *Cell*. 1992;70(5):729-40.

- 23 Sönnichsen B, Renzis SD, Nielsen E, Rietdorf J, Zerial M. Distinct membrane domains on endosomes in the recycling pathway visualized by multicolor imaging of Rab4, Rab5, and Rab11. *The Journal of Cell Biology*. 2000;149(4):901–913.
- 24 Ren M, Xu G, Zeng J, De Lemos-Chiarandini C, Adesnik M, Sabatini DD. Hydrolysis of GTP on Rab11 is required for the direct delivery of transferrin from the pericentriolar recycling compartment to the cell surface but not from sorting endosomes. *Proceedings of the National Academy of Sciences of the United States of America*. 1998;95(11):6187-92.
- 25 Casanova JE, Wang X, Kumar R, Bhartur SG, Navarre J, Woodrum JE, et al. Association of Rab25 and Rab11a with the apical recycling system of polarized Madin-Darby canine kidney cells. *Molecular Biology of the Cell*. 1999;10(1):47-61.
- 26 Lombardi D, Soldatil T, Riederer MA, Goda Y, Zerial M, Pfeffer SR. Rab9 functions in transport between late endosomes and the trans golgi network. *The EMBO Journal*. 1993;12(2):677-82.
- 27 Lledo P-M, Verniert P, Vincent J-D, Mason WT, Zorec R. Inhibition of RabSB expression attenuates Ca²⁺-dependent exocytosis in rat anterior pituitary cells. *Nature*. 1993;364(6437):540-4.
- 28 Matteoli M, Takei K, Cameron R, Hurlbut P, Johnston PA, Sudhof TC, et al. Association of Rab3A with synaptic vesicles at late stages of the secretory pathway. *The Journal of Cell Biology*. 1991;115(3):625-33.
- 29 Hunziker W, Peters P. Rab17 localizes to recycling endosomes and regulates receptor-mediated transcytosis in epithelial cells. *The Journal of Biological Chemistry*. 1998;273(25):15734–41.
- 30 Vitelli R, Santillo M, Lattero D, Chiariello M, Bifulco M, Brunii CD, et al. Role of the small GTPase Rab7 in the late endocytic pathway. *The Journal of Biological Chemistry*. 1997;272(7):4391–97.
- 31 Bucci C, Thomsen P, Nicoziani P, McCarthy J, Deurs BV. Rab7: A key to lysosome biogenesis. *Molecular Biology of the Cell*. 2000;11:467–480.

- 32 Vanlandingham PA, Ceresa BP. Rab7 regulates late endocytic trafficking downstream of multivesicular body biogenesis and cargo sequestration. *Journal of Biological Chemistry*. 2009;284(18):12110-24.
- 33 Yao M, Liu X, Li D, Chen T, Cai Z, Cao X. Late endosome/lysosome-localized Rab7b suppresses TLR9-initiated proinflammatory cytokine and type I IFN production in macrophages. *The Journal of Immunology*. 2009;183(3):1751-8.
- 34 Vonderheit A, Helenius A. Rab7 associates with early endosomes to mediate sorting and transport of semliki forest virus to late endosomes. *PLoS Biology*. 2005;3(7):1225-38.
- 35 Wang T, Ming Z, Xiaochun W, Hong W. Rab7: Role of its protein interaction cascades in endo-lysosomal traffic. *Cellular Signalling*. 2011;23(3):516-21.
- 36 Sritunyalucksana K, Wannapapho W, Lo CF, Flegel TW. PmRab7 is a VP28-binding protein involved in white spot syndrome virus infection in shrimp. *Journal of Virology*. 2006;80(21):10734-42.
- 37 Assavalapsakul W, Smith DR, Panyim S. Identification and characterization of a *Penaeus monodon* lymphoid cell-expressed receptor for the yellow head virus. *Journal of Virology*. 2005;80(1):262-9.
- 38 Ongvarrasopone C, Chanasakulniyom M, Sritunyalucksana K, Panyim S. Suppression of PmRab7 by dsRNA inhibits WSSV or YHV infection in shrimp. *Marine Biotechnology*. 2008;10(4):374-81.
- 39 Ongvarrasopone C, Chomchay E, Panyim S. Antiviral effect of PmRab7 knock-down on inhibition of laem-singh virus replication in black tiger shrimp. *Antiviral Research*. 2010;88(1):116-8.
- 40 Ongvarrasopone C, Saejia P, Chanasakulniyom M, Panyim S. Inhibition of taura syndrome virus replication in *Litopenaeus vannamei* through silencing the LvRab7 gene using double-stranded RNA. *Archives of Virology*. 2011; 156(7):1117-23.
- 41 Seachrist JL, Ferguson SSG. Regulation of G protein-coupled receptor endocytosis and trafficking by Rab GTPases. *Life Sciences*. 2003;74 (2-3):225-35.
- 42 Hannon GJ. RNA interference. *Nature*. 2002;418(6894):244-51.

- 43 Fire A, Xu S, Montgomery MK, Kostas SA, Driver SE, Mello CC. Potent and specific genetic interference by double-stranded RNA in *Caenorhabditis elegans*. *Nature*. 1998;391(6669):806-11.
- 44 Tirasophon W, Roshorm Y, Panyim S. Silencing of yellow head virus replication in penaeid shrimp cells by dsRNA. *Biochemical and Biophysical Research Communications*. 2005;334(1):102-7.
- 45 Yodmuang S, Tirasophon W, Roshorm Y, Chinnirunvong W, Panyim S. YHV-protease dsRNA inhibits YHV replication in *Penaeus monodon* and prevents mortality. *Biochemical and Biophysical Research Communications*. 2006;341(2):351-6.
- 46 Tirasophon W, Yodmuang S, Chinnirunvong W, Plongthongkum N, Panyim S. Therapeutic inhibition of yellow head virus multiplication in infected shrimps by YHV-protease dsRNA. *Antiviral Research*. 2007;74(2):150-5.
- 47 Saksmerprome V, Charoonart P, Gangnonngiw W, Withyachumnarnkul B. A novel and inexpensive application of RNAi technology to protect shrimp from viral disease. *Journal of Virological Methods*. 2009;162(1-2):213-7.
- 48 Westenberg M, Heinhuis B, Zuidema D, Vlak JM. siRNA injection induces sequence-independent protection in *Penaeus monodon* against white spot syndrome virus. *Virus Research*. 2005;114(1-2):133-9.
- 49 Kim CS, Kosuke Z, Nam YK, Kim SK, Kim KH. Protection of shrimp (*Penaeus chinensis*) against white spot syndrome virus (WSSV) challenge by double-stranded RNA. *Fish & Shellfish Immunology*. 2007;23(1):242-6.
- 50 Wu Y, Lü L, Yang L-S, Weng S-P, Chan S-M, He J-G. Inhibition of white spot syndrome virus in *Litopenaeus vannamei* shrimp by sequence-specific siRNA. *Aquaculture*. 2007;271(1-4):21-30.
- 51 Xu J, Han F, Zhang X. Silencing shrimp white spot syndrome virus (WSSV) genes by siRNA. *Antiviral Research*. 2007;73(2):126-31.
- 52 Rijiravanich A, Browdy CL, Withyachumnarnkul B. Knocking down caspase-3 by RNAi reduces mortality in Pacific white shrimp *Penaeus (Litopenaeus) vannamei* challenged with a low dose of white-spot syndrome virus. *Fish & Shellfish Immunology*. 2008;24(3):308-13.

- 53 Attasart P, Kaewkhaw R, Chimwai C, Kongphom U, Namramoon O, Panyim S. Inhibition of white spot syndrome virus replication in *Penaeus monodon* by combined silencing of viral rr2 and shrimp PmRab7. *Virus Research*. 2009;145(1):127-33.
- 54 Dang LT, Koyama T, Shitara A, Kondo H, Aoki T, Hirono I. Involvement of WSSV-shrimp homologs in WSSV infectivity in kuruma shrimp: *Marsupenaeus japonicus*. *Antiviral Research*. 2010;88(2):217-26.
- 55 Mejía-Ruíz CH, Vega-Peña S, Alvarez-Ruiz P, Escobedo-Bonilla CM. Double-stranded RNA against white spot syndrome virus (WSSV) vp28 or vp26 reduced susceptibility of *Litopenaeus vannamei* to WSSV, and survivors exhibited decreased susceptibility in subsequent re-infections. *Journal of Invertebrate Pathology*. 2011;107(1):65-8.
- 56 Ongvarrasopone C, Roshorm Y, Panyim S. A simple and cost effective method to generate dsRNA for RNAi studies in invertebrates. *ScienceAsia*. 2007;33(1):35-39.
- 57 Basak S, Turner H. Infectious entry pathway for canine parvovirus. *Virology*. 1992;186(2):368-76.
- 58 Vihinen-Ranta M, Kalela A, Makinen P, Kakkola L, Marjomaki V, Vuento M. Intracellular route of canine parvovirus entry. *Journal of Virology*. 1998;72(1):802-6.
- 59 Parker JSL, Parrish CR. Cellular uptake and infection by canine parvovirus involves rapid dynamin-regulated clathrin-mediated endocytosis, followed by slower intracellular trafficking. *Journal of Virology*. 2000;74(4):1919–30.
- 60 Suikkanen S, Saajarvi K, Hirsimaki J, Valilehto O, Reunanen H, Vihinen-Ranta M, et al. Role of recycling endosomes and lysosomes in dynein-dependent entry of canine parvovirus. *Journal of Virology*. 2002;76(9):4401-11.
- 61 Vidricaire G, Tremblay MJ. Rab5 and Rab7, but Not ARF6, govern the early events of HIV-1 infection in polarized human placental cells. *The Journal of Immunology*. 2005;175:6517-6530.

- 62 Attasart P, Kaewkhaw R, Chimwai C, Kongphom U, Panyim S. Clearance of *Penaeus monodon* densovirus in naturally pre-infected shrimp by combined ns1 and vp dsRNAs. *Virus Research*. 2011;159(1):79-82.
- 63 Posiri P, Ongvarrasopone C, Panyim S. Improved preventive and curative effects of YHV infection in *Penaeus monodon* by a combination of two double stranded RNAs. *Aquaculture*. 2011;314(1-4):34-8.
- 64 Robalino J, Bartlett T, Shepard E, Prior S, Jaramillo G, Scura E, et al. Double-stranded RNA induces sequence-specific antiviral silencing in addition to nonspecific immunity in a marine shrimp: convergence of RNA interference and innate immunity in the invertebrate antiviral response. *Journal of Virology*. 2005;79(21):13561-71.