

Rajendra Prasad Janapatla (PhD)

Assistant Researcher (Research Fellow/Research Associate) & PI, Molecular Infectious Diseases Research Center, Department of Pediatrics, Chang Gung Children's Hospital, Gueishan, 333-Taoyuan, Taiwan. janapatla.raj@gmail.com, +886-911407051

Areas of Interest:

Protein vaccine development / Glycoprotein biomarkers discovery and validation / Genomics & Proteomics / Antibiotics & Clinical Microbiology / Pre & Probiotics / Clinical observational studies / Infectious diseases research / Bacterial pathogenesis / Host-Bacterial interactions / Glyco-Immunobiology / Cancer research

Highlights

Vaccine - Patent

Pneumococcal neuraminidases based protein vaccine to prevent pneumococcal diseases

Biomarker - Patent

Fetuin-Sialoglycoproteins levels in serum are protective and correlate with invasive Pneumococcal diseases.

Anti-infectives

Fucose based prebiotic for anti-*Pseudomonas aeruginosa* adhesion therapy.

Research:

Bacterial pathogenesis, quorum sensing, Type secretion systems, antibiotic resistance and epidemiological studies etc.,

Clinical Observational Studies:

Pneumococcal conjugate vaccines, biomarkers analysis in a clinical setting.

Patents = 6 (3US, 2 Taiwan, 1 China)

Publications = 20

Education and Experience

Research Fellow (Research Associate) & PI

[4/2014 - Present]

Prof. Dr. Cheng-Hsun Chiu

Molecular Infectious Diseases Research Center, Department of Pediatrics, Chang Gung Children's Hospital, Gueishan, Taoyuan, Taiwan.

Post Doctoral Fellow [3/2009 - 4/2014]

Prof. Dr. Cheng-Hsun Chiu

Molecular Infectious Diseases Research Center, Department of Pediatrics, Chang Gung Children's Hospital, Gueishan, Taoyuan, Taiwan.

Post Doctoral Fellow [1/2006 - 2/2009]

Lab: Prof. Dr. Jiunn-Jong Wu

Department of Medical Laboratory Science and Biotechnology, National Cheng Kung University, Tainan, Taiwan.

Ph.D. in Microbiology/Genetics [5/2002 - 7/2005]

Lab: Dr. Emmanuelle Charpentier

Department of Microbiology and Immunobiology, Max F. Perutz Laboratories, University Departments at the Vienna Biocenter, University of Vienna, Vienna, Austria.

Project Research Fellow [4/2000 - 4/2002]

Toxicology Department, Indian Institute of Chemical Technology, Hyderabad, India

Master of Science, MSc [1/1998 - 3/2000]

Environmental Science and Technology

Jawaharlal Nehru Technological University, Hyderabad, India

Bachelor of Science, BSc [7/1994 - 1/1998]

Botany, Zoology, Chemistry

Osmania University, Hyderabad, India

Publications - Pubmed ID : Janapatla (h-index = 11; i10-index = 11)

<http://orcid.org/0000-0003-4331-0925>

1: Janapatla RP, Hsu MH, Chen CL, Wei SH, Yu MJ, Su LH, Lin TY, Chiu CH. Persistence of immunity in children immunised with 13-valent pneumococcal conjugate vaccine and impact on nasopharyngeal carriage: a cross-sectional study. *Thorax*. 2020 Aug;75(8):689-692. doi: 10.1136/thoraxjnl-2019-213878. Epub 2020 May 22. PMID: 32444435; PMCID: PMC7402562.

2: Lin HH, Chen HL, Janapatla RP, Chen CL, Chiu CH. Hyperexpression of type III secretion system of *Salmonella* Typhi linked to a higher cytotoxic effect to monocyte-derived macrophages by activating inflammasome. *Microb Pathog*. 2020 Sep;146:104222. doi:10.1016/j.micpath.2020.104222. Epub 2020 May 6. PMID: 32387390.

3: Chen CL, Hou PC, Wang YT, Lee HY, Zhou YL, Wu TS, Janapatla RP, Yang CC. The High mortality and antimicrobial resistance of *Klebsiella pneumoniae* bacteremia in northern Taiwan. *J Infect Dev Ctries*. 2020 Apr 30;14(4):373-379. doi: 10.3855/jidc.11524. PMID: 32379714.

4: Chen YC, Chen HH, Janapatla RP, Dudek A, Hsu MH, Chen CL, Chiu CH. Thomsen-Friedenreich antigen activation as a predictor for clinical outcome of pediatric patients with invasive pneumococcal disease. *Pediatr Neonatol*. 2020 Jun;61(3):338-342. doi: 10.1016/j.pedneo.2020.02.005. Epub 2020 Feb 22. PMID: 32156480.

5: Lin HH, Chen HL, Weng CC, Janapatla RP, Chen CL, Chiu CH. Activation of apoptosis by *Salmonella* pathogenicity island-1 effectors through both intrinsic and extrinsic pathways in *Salmonella*-infected macrophages. *J Microbiol Immunol Infect*. 2020 Feb 26:S1684-1182(20)30036-0. doi: 10.1016/j.jmii.2020.02.008. Epub ahead of print. PMID: 32127288.

6: Chen HH, Hsu MH, Wu TL, Li HC, Chen CL, Janapatla RP, Su LH, Chiu CH. Non-typeable *Streptococcus pneumoniae* infection in a medical center in Taiwan after wide use of pneumococcal conjugate vaccine. *J Microbiol Immunol Infect*. 2020 Feb;53(1):94-98. doi: 10.1016/j.jmii.2018.04.001. Epub 2018 May 14. PMID: 29804657.

7: Lee CC, Hsu JF, Prasad Janapatla R, Chen CL, Zhou YL, Lien R, Chiu CH. Clinical and Microbiological Characteristics of Group B *Streptococcus* from Pregnant Women and Diseased Infants in Intrapartum Antibiotic Prophylaxis Era in Taiwan. *Sci Rep*. 2019 Sep 19;9(1):13525. doi: 10.1038/s41598-019-49977-2. PMID: 31537886; PMCID: PMC6753095.

8: Janapatla RP, Chen CL, Hsu MH, Liao WT, Chiu CH. Immunization with pneumococcal neuraminidases NanA, NanB and NanC to generate neutralizing antibodies and to increase survival in mice. *J Med Microbiol*. 2018 May;67(5):709-723. doi: 10.1099/jmm.0.000724. PMID: 29557769.

9: Lo YL, Chen CL, Shen L, Chen YC, Wang YH, Lee CC, Wang LC, Chuang CH, Janapatla RP, Chiu CH, Chang HY. Characterization of the role of global regulator FliA in the pathophysiology of *Pseudomonas aeruginosa* infection. *Res Microbiol*. 2018 Apr;169(3):135-144. doi: 10.1016/j.resmic.2018.02.001. Epub 2018 Feb 10. PMID: 29432810.

10: Chen CL, Su LH, Janapatla RP, Lin CY, Chiu CH. Genetic analysis of virulence and antimicrobial-resistant plasmid pOU7519 in *Salmonella enterica* serovars Choleraesuis. *J Microbiol Immunol Infect*. 2020 Feb;53(1):49-59. doi: 10.1016/j.jmii.2017.11.004. Epub 2017 Dec 14. PMID: 29273286.

11: Lee HY, Wu TL, Su LH, Li HC, Janapatla RP, Chen CL, Chiu CH. Invasive pneumococcal

disease caused by ceftriaxone-resistant *Streptococcus pneumoniae* in Taiwan. *J Microbiol Immunol Infect.* 2018 Aug;51(4):500-509. doi: 10.1016/j.jmii.2016.12.004. Epub 2017 Jun 26. PMID: 28690025.

12: Janapatla RP, Su LH, Chen HH, Chang HJ, Tsai TC, Chen PY, Chen CL, Chiu CH. Epidemiology of culture-confirmed infections of *Streptococcus pneumoniae* (2012-2015) and nasopharyngeal carriage in children and households in Taiwan (2014-2015). *J Med Microbiol.* 2017 Jun;66(6):729-736. doi: 10.1099/jmm.0.000488. Epub 2017 Jun 8. PMID: 28590240.

13: Chuang CH, Janapatla RP, Wang YH, Chang HJ, Huang YC, Lin TY, Chiu CH. *Pseudomonas aeruginosa*-associated Diarrheal Diseases in Children. *Pediatr Infect Dis J.* 2017 Dec;36(12):1119-1123. doi: 10.1097/INF.0000000000001567. PMID: 28151843.

14: Huang KY, Wang YH, Chien KY, Janapatla RP, Chiu CH. Hyperinvasiveness of *Salmonella enterica* serovar Choleraesuis linked to hyperexpression of type III secretion systems in vitro. *Sci Rep.* 2016 Nov 25;6:37642. doi: 10.1038/srep37642. PMID: 27886215; PMCID: PMC5122882.

15: Janapatla RP, Hsu MH, Liao WT, Chien KY, Lee HY, Chiu CH. Low Serum Fetuin-A as a Biomarker to Predict Pneumococcal Necrotizing Pneumonia and Hemolytic Uremic Syndrome in Children. *Medicine (Baltimore).* 2016 Mar;95(13):e3221. doi: 10.1097/MD.0000000000003221. Erratum in: *Medicine (Baltimore).* 2018 Jan;97(3):e9684. PMID: 27043691; PMCID: PMC4998552.

16: Janapatla RP, Hsu MH, Hsieh YC, Lee HY, Lin TY, Chiu CH. Necrotizing pneumonia caused by nanC-carrying serotypes is associated with pneumococcal haemolytic uraemic syndrome in children. *Clin Microbiol Infect.* 2013 May;19(5):480-6. doi: 10.1111/j.1469-0691.2012.03894.x. Epub 2012 May 16. PMID: 22591179.

17: Janapatla RP, Chang HJ, Hsu MH, Hsieh YC, Lin TY, Chiu CH. Nasopharyngeal carriage of *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*, and *Alloiococcus otitidis* in young children in the era of pneumococcal immunization, Taiwan. *Scand J Infect Dis.* 2011 Dec;43(11-12):937-42. doi: 10.3109/00365548.2011.601754. Epub 2011 Sep 6. PMID: 21892897.

18: Janapatla RP, Yan JJ, Chien ML, Chen HM, Wu HM, Wu JJ. Effect of overnight storage of blood culture bottles on bacterial detection time in the BACTEC 9240 blood culture system. *J Microbiol Immunol Infect.* 2010 Apr;43(2):126-32. doi: 10.1016/S1684-1182(10)60020-5. PMID: 20457429.

19: Janapatla RP, Hsu MH, Du JF, Hsieh YC, Lin TY, Chiu CH. Sequence types and antimicrobial susceptibility of invasive streptococcus pneumoniae isolates from a region with high antibiotic selective pressure and suboptimal vaccine coverage. *Pediatr Infect Dis J.* 2010 May;29(5):467-9. doi: 10.1097/INF.0b013e3181cb45f3. PMID: 20027125.

20: Janapatla RP, Ho YR, Yan JJ, Wu HM, Wu JJ. The prevalence of erythromycin resistance in group B streptococcal isolates at a University Hospital in Taiwan. *Microb Drug Resist.* 2008 Dec;14(4):293-7. doi: 10.1089/mdr.2008.0853. PMID: 19025386.

21: Siller M, Janapatla RP, Pirzada ZA, Hassler C, Zinkl D, Charpentier E. Functional analysis of the group A streptococcal luxS/AI-2 system in metabolism, adaptation to stress and interaction with host cells. *BMC Microbiol.* 2008 Oct 30;8:188. doi: 10.1186/1471-2180-8-188. PMID: 18973658; PMCID: PMC2603038.

22: Wu HM, Janapatla RP, Ho YR, Hung KH, Wu CW, Yan JJ, Wu JJ. Emergence of fluoroquinolone resistance in group B streptococcal isolates in Taiwan. *Antimicrob Agents*

Chemother. 2008 May;52(5):1888-90. doi: 10.1128/AAC.00035-08. Epub 2008 Feb 25. PMID: 18299411; PMCID: PMC2346645.

23: Vojtek I, Pirzada ZA, Henriques-Normark B, Mastny M, Janapatla RP, Charpentier E. Lysogenic transfer of group A Streptococcus superantigen gene among Streptococci. J Infect Dis. 2008 Jan 15;197(2):225-34. doi: 10.1086/524687. PMID: 18179387; PMCID: PMC3030952.

24: Garnier F, Janapatla RP, Charpentier E, Masson G, Grélaud C, Stach JF, Denis F, Ploy MC. Insertion sequence 1515 in the ply gene of a type 1 clinical isolate of Streptococcus pneumoniae abolishes pneumolysin expression. J Clin Microbiol. 2007 Jul;45(7):2296-7. doi: 10.1128/JCM.02168-06. Epub 2007 May 9. PMID: 17494718; PMCID: PMC1933007.

25: Liu YF, Wang CH, Janapatla RP, Fu HM, Wu HM, Wu JJ. Presence of plasmid pA15 correlates with prevalence of constitutive MLS(B) resistance in group A streptococcal isolates at a university hospital in southern Taiwan. J Antimicrob Chemother. 2007 Jun;59(6):1167-70. doi: 10.1093/jac/dkm106. Epub 2007 Apr 25. PMID: 17460027.

26: Janapatla RP, Yan JJ, Huang AH, Chen HM, Wu HM, Wu JJ. Inducible clindamycin resistance in Staphylococcus aureus isolates causing bacteremia at a university hospital in southern Taiwan. Diagn Microbiol Infect Dis. 2007 Jun;58(2):203-9. doi: 10.1016/j.diagmicrobio.2006.12.016. Epub 2007 Feb 14. PMID: 17300897.

27: Janapatla RP, Ramakrishna B, Venkateswara RJ. Comparative insecticidal activity of profenofos and monocrotophos in relation to in vitro and in vivo acetylcholinesterase activity of the housefly, *Musca domestica* Linnaeus. International Pest Control 2001, 47, 112-114.

Conference posters

1. **Janapatla RP**, Hsu M-H, Wan-Ting L, C-H Chiu. Neuraminidases NanA, NanB and NanC based vaccine to prevent pneumococcal infection. 30th International Congress of Chemotherapy and Infection 2017 (ICC 2017). P834
 2. **Janapatla RP**, Hsu M-H, Wan-Ting L, C-H Chiu. Fetuin-A as a biomarker to predict invasive pneumococcal disease in children. 17th International Congress on Infectious Diseases, Hyderabad, India. (March 2 - 5, 2016) P14.175.
 3. **Janapatla RP**, Hsu M-H, Wan-Ting L, C-H Chiu. NanB and NanC in the pathogenesis of systemic pneumococcal infection. 9th International Symposium on Pneumococci and Pneumococcal Diseases, Hyderabad, India. (March 9-13, 2014) P220.
 4. Hsu M-H, **Janapatla RP**, Hsieh Y-C, Lee H-Y, Lin T-Y, C-H Chiu. Necrotizing pneumonia caused by *nanC*-carrying serotypes is associated with pneumococcal hemolytic uremic syndrome in Children. 4th Annual World Congress of Vaccine (WCV-2012). Beijing, China. P76.
 5. **Janapatla RP**, Chuang CH, C-H Chiu. Adhesion and cytotoxicity of *Pseudomonas aeruginosa* clinical isolates that cause diarrhea and sepsis in infants. Pseudomonas 2011 Conference. Sydney, Australia. P36.
 6. Siller M, **Janapatla RP**, Pirzada ZA, Hassler C, Zinkl D and Charpentier E. Functions of the LuxS/AI-2 system in M1 and M19 *Streptococcus pyogenes*. XVII Lancefield International Symposium on Streptococci and Streptococcal Diseases June 22-26, 2008. Porto Heli, Greece. Poster 131. P: 229.
 7. Wu HM, **Janapatla RP**, Ho YR, Hung KH, Wu CW, Yan JJ, Wu JJ. Emergence and prevalence of high level fluoroquinolone resistance in group B streptococci isolates in Taiwan. 108th ASM general meeting, June 1-5, 2008. Boston, MA. A-119-324/A.
 8. **Janapatla RP**, Yan JJ, Huang AH, Chen HM, Wu HM, Wu JJ. Inducible clindamycin
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resistance in *Staphylococcus aureus* isolates causing bacteremia at a university hospital in southern Taiwan. (R2142) 17th European Congress of Clinical Microbiology and Infectious Diseases & 25th International Congress of Chemotherapy. March 31-April 3, 2007. Munich, Germany. Clin. Microbiol Infect. 13: S620

10. Liu IF, Wang CH, **Janapatla RP**, Fu HM, Wu HM, and Wu JJ. Presence of plasmid pA15 correlates with prevalence of constitutive MLSB resistance in group A streptococcal isolates at a university hospital in southern Taiwan. (Abstract P990) in 17th European Congress of Clinical Microbiology and Infectious Diseases & 25th International Congress of Chemotherapy. March 31-April 3, 2007. Munich, Germany. Clin. Microbiol Infect. 13: S263
11. Siller M, **Janapatla RP**, Charpentier E. Regulation of virulence factor expression by the AI-2/luxS signaling in *Streptococcus pyogenes* is serotype-dependent. 2nd FEMS Congress of European Microbiologist. July 4–8, 2006. Madrid, Spain. PP:74.
12. Vojtek I, Pirzada ZA, Henriques-Normark B, **Janapatla RP**, Charpentier E. Transfer of a Superantigen SSA-Encoding Gene via a Novel Chimeric Bacteriophage among Group A Streptococci. The Seventh International Conference on the Genetics of Streptococci, Lactococci, and Enterococci. 2006. Saint Malo, Bretagne, France.

Conference abstracts publications

1. **Janapatla RP**, Hsu MH, Liao WT, Chiu CH. Fetuin-A as a biomarker to predict invasive Pneumococcal disease in children. International Journal of Infectious Diseases. 2016; 45S:1–477.
2. **Janapatla RP**, Hsu MH, Liao WT, Chiu CH. NanB and NanC in the pathogenesis of systemic pneumococcal infection. Pneumonia 2014 Mar 9-13; 3:1-286
3. **Janapatla RP**, Hsu MH, Liao WT, Chiu CH. Neuraminidases NanA, NanB and NanC based vaccine to prevent pneumococcal infection. International Journal of Antimicrobial Agents 50 S2 (2017) S69–S278
4. Chen CL, **Janapatla RP**, Chiu CH Chimeric virulence and antimicrobial-resistant plasmid pOU7519 in *Salmonella enterica* serovar Choleraesuis. International Journal of Antimicrobial Agents 50 S2 (2017) S29–S6

Reviewer for journals

1. Journal of Medical Microbiology
2. Medicine (Baltimore)
3. Scientific Reports
4. Journal of Formosa Medical Association

Patents Portfolio

Patent Title	Country Patent Number	Inventors	Duration
A method for detection of hemolytic uremic syndrome and necrotizing pneumonia in children with pneumococcal disease using serum fetuin-A levels as a biomarker	USA US 9261504 B1	Chiu CH, Janapatla RP , Chen CL	2014/09 to 2034/09
A method using fetuin-A as a biomarker for detection of hemolytic uremic syndrome in patients with severe	Taiwan I 536017	Chiu CH, Janapatla RP , Chen CL	2014/09 to 2034/09

invasive pneumococcal disease			
Method of diagnosing and preventing pneumococcal diseases using pneumococcal neuraminidases (For vaccine)	USA US 9,040,057 B2	Chiu CH, Janapatla RP , Chen CL, Hsu MH, Chen HL, Huang CT, Chang HJ, and Liao WT	2013/02 to 2033/02
Method of diagnosing and preventing pneumococcal diseases using pneumococcal neuraminidases (For diagnosis)	USA US 9,023,599 B2	Chiu CH, Janapatla RP , Chen CL, Hsu MH, Chen HL, Huang CT, Chang HJ, and Liao WT	2013/02 to 2033/02
Method of diagnosis and prevention pneumococcal diseases using <i>Streptococcus pneumoniae</i> neuraminidases (For vaccine)	Taiwan I482969	Chiu CH, Janapatla RP , Chen CL, Hsu MH, Chen HL, Huang CT, Chang HJ, and Liao WT	2015/05 to 2031/12
A protein vaccine composition against <i>Streptococcus pneumoniae</i> infection and a method for detecting <i>Streptococcus pneumoniae</i> in a sample	China ZL 2013 1 0089769.0	Chiu CH, Janapatla RP , Chen CL, Hsu MH, Chen HL, Huang CT, Chang HJ, and Liao WT	2013/03 to 2033/02
Neuraminidase-based vaccine components and methods for diagnosing and preventing pneumococcal diseases	EU EP 13162989.1	Chiu CH, Janapatla RP , Chen CL, Hsu MH, Chen HL, Huang CT, Chang HJ, and Liao WT	Submitted 2013/04 Withdrawn 2017/10

Funding as Principal Investigator

Title	Sponsor	Duration
Mouse Model to Analyze Sialoglycoproteins and Neuraminidase Role in Pneumococcus Infection. MOST 104-2320-B-182A-008 & NMRPG3E0211	Ministry of Science & Tech of Taiwan	2015/08~ 2016/10
Carbohydrate binding specificity of type V secretion system lectin domains of <i>P. aeruginosa</i> . CMRPG3F1142	Chang Gung Memorial Hospital	2016/03~ 2019/02
Therapeutic potential of monoclonal antibodies against <i>Streptococcus pneumoniae</i> serotypes 3, 15A, 15B and 23A capsular polysaccharide	Chang Gung Memorial Hospital	2017/12~ 2018/11
Characterization of intestinal microbial dysbiosis from carbapenem-resistant <i>P. aeruginosa</i> colonization and identification of anti-adhesive agents CMRPG3G1971	Chang Gung Memorial Hospital	2018/8~ 2019/7
Targeting <i>Pseudomonas aeruginosa</i> Type V protein secretion systems: for anti-adhesion therapy of <i>Pseudomonas</i> gastrointestinal infections and gut microbiota modulation	Ministry of Science & Tech of Taiwan	2019/8~ 2020/7

Invited Oral Presentations

1. **Janapatla RP**. (Oral Presentation). Carbohydrate binding specificity of lectin domains of type V secretion system of *Pseudomonas aeruginosa* 2017 Glycotreat (GlycoForum). New Taipei City. (April; 10-11, 2017)
2. **Janapatla RP**, Chen CL, C-H Chiu. (Oral Presentation). Fetuin-A as a biomarker to predict invasive pneumococcal disease in children. 2016 Glycotreat (GlycoForum)/ MICC-4. New Taipei City. (March 2 - 5, 2016)