



## Bharat Bhusan Patnaik, Ph.D., Post-Doc., VRP

### Professor

**Area:** Insect immunity, Molecular Genetics and Informatics, Structural and Functional Genomics

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## Education

Ph.D.	Molecular Biotechnology	Loyola College, University of Madras- 2005
M.Phil.	Zoology	Loyola College, University of Madras- 2000
M.Sc.	Zoology	University of Madras- 1999

## Other details

- ✚ Research Professor at Department of Life Science and Biotechnology, College of Natural Sciences, Soonchunhyang University, Asan City, Korea (May 2015-February 2016) working on National Institute of Biological Resources, Govt. of Korea funded Invertebrate Genomics project of excellence.
- ✚ Consultant in the field of Molecular Informatics and Science Writing for- Chonnam National University, Gwangju, South Korea; Soonchunhyang University, Asan City, Gwangju, South Korea; Hoseo University, Asan City, South Korea
- ✚ Co-guide and mentor for three Ph.D. students and one MS student at Chonnam National University, Gwangju, South Korea in the area targeted gene silencing and molecular genetics and informatics
- ✚ Certificate of Accomplishment from Stanford School of Medicine, USA for a course in Writing in Sciences (2013) and Johns Hopkins University for an introductory course in Genome Technologies (2015)
- ✚ External Examiner for Ph.D. candidates from University of Madras, Tamilnadu, India and editorial board member-Entomological Research. Reviewer for PLoS ONE, Entomological Research, Journal of Environmental Biology, Journal of Hazardous Materials etc.
- ✚ Certificate of Training in Molecular Sciences and Bioinformatics from-GeneTech Pvt. Ltd., Salem, Tamilnadu Veterinary and Animal Sciences University, Chennai M.V. Diabetes Research Foundation, Chennai Life Tech India Pvt. Ltd., Chennai
- ✚ Visiting Faculty/Invited Speaker at-Entomological Society of Korea Guru Ghasidas University, Bilaspur, India and Loyola College, Chennai, India.

## Academic Experience

- ✚ *International Scholar Exchange Laureate* (2011-2012) and awarded an independent project with full funding by Korea Foundation for Advanced Studies, Seoul, South Korea

- ✚ **UGC-NRCBS Visiting Fellowship** (2010) to School of Biological Sciences, Madurai Kamaraj University, Madurai, Tamilnadu
- ✚ **Indian Academies of Sciences Summer Fellowship** (2007) to Research Department of Zoology, Visva-Bharathi University, Santiniketan, West Bengal
- ✚ Worked with Central Silk Board (2009-2013) as a Scientist-B (Biotechnology) and assisted in Research, Teaching, and Extension activities
- ✚ Faculty in Biotechnology and Biomedical Instrumentation Sciences (2005-2006) at Loyola College and New College (Autonomous courses affiliated to University of Madras)

## Research Focus

- ✚ Establishing RNA interference (RNAi) screens for structural and functional genomics of crop pests and development of a biotherapeutant for disease control in cultured prawn fishery.
- ✚ Transcriptomics, Proteomics, and RNA-Seq analysis of gut and systemic innate immunity genes.
- ✚ Isolation, purification, and characterisation of chemical compounds, peptides, and proteins from herbal plants, insects, and other resources.

## Publications

- ✚ Hwang, H.J.\*; **Bharat Bhusan Patnaik\***, Kang, S.W.; Park, S.Y.; Wang, T.H.; Park, E.B.; Chung, J.M.; Song, D.K.; Patnaik, H.H.; Kim, C.; Kim, S.; Lee, J.B.; Jeong, H.C.; Park, H.S.; Han, Y.S.; Lee, Y.S. (2016). RNA Sequencing, *de novo* assembly, and functional annotation of an endangered Nymphalid butterfly, *Fabriciana nerippe* Felder, 1862. *Entomological Research*. Online open. <http://dx.doi.org/10.1111/1748-5967.12164> (IF-0.398).

\*Equal contributions

- ✚ **Bharat Bhusan Patnaik**, Wang, T.H.; Kang, S.W.; Hwang, H-J.; Park, S.Y.; Park, E.B.; Chung, J.M.; Song, D.K.; Kim, C.; Kim, S.; Lee, J.S.; Han, Y.S.; Park, H.S.; Lee, Y.S. (2016). Sequencing, *De novo* assembly, and annotation of the transcriptome of the endangered freshwater pearl bivalve, *Cristaria plicata*, provides novel insights into functional genes and marker discovery. *PLoS ONE* 11(2): e0148622. DOI: <http://dx.doi.org/10.1371/journal.pone.0148622> (IF-3.234).
- ✚ **Bharat Bhusan Patnaik**, Park, S.Y.; Kang, S.W.; Hwang, H-J.; Wang T.H.; Park, E.B.; Chung, J.M.; Song, D.K.; Kim, C.; Kim, S.; Lee, J.B.; Jeong, H.C.; Park, H.S.; Han, Y.S.; Lee, Y.S. (2016) Transcriptome profile of the Asian Giant Hornet (*Vespa mandarinia*) using Illumina HiSeq 4000 sequencing: *De novo* assembly, functional annotation, and discovery of SSR markers. *International Journal of Genomics*, Article ID 4169587. DOI: <http://dx.doi.org/10.1155/2016/4169587> (IF-0.953)
- ✚ **Bharat Bhusan Patnaik**, Hwang, H.J.; Kang, S.W.; Park, S.Y.; Wang, T.H.; Park, E.B.; Chung, J.M.; Song, D.K.; Kim, C.; Kim, S.; Lee, J.B.; Jeong, H.C.; Park, H.S.; Han, Y.S.;

Lee, Y.S. (2015) Transcriptome characterization for non-model endangered lycaenids, *Protantigius superans* and *Spindasis takanosis*, using Illumina HiSeq 2500 sequencing. *International Journal of Molecular Sciences* 16, 29948-29970. DOI: <http://dx.doi.org/10.3390/ijms161226213> (IF-2.862).

- ✚ Kwon, H-J.; Kim, J.M.; Han, K-I.; Jung, E-G.; Kim, Y.H.; **Bharat Bhusan Patnaik**, Yoon, M.S.; Chung, S.K.; Kim, W.J.; Han, M-D. (2015). Mutan: A mixed linkage  $\alpha$ -[(1,3) - and (1,6)]-D-glucan from *Streptococcus mutans*, that induces osteoclast differentiation and promotes alveolar bone loss. *Carbohydrate Polymers*, 137, 561-569. DOI: <http://dx.doi.org/10.1016/j.carbpol.2015.11.013> (IF-4.074).
- ✚ Kang, S.W.; Park, S.Y.; **Bharat Bhusan Patnaik**, Hwang, H-J.; Kim, C.; Kim, S.; Lee, J.S.; Han, Y.S.; Lee, Y.S. (2015). Construction of PANM database (Protostome DB) for rapid annotation of NGS data in Mollusks. *Korean Journal of Malacology*, 31(3), 243-247. DOI: <http://dx.doi.org/10.9710/kjm.2015.31.3.243>
- ✚ Jeong, J.E.; Kang, S.W.; Hwang, H-J.; Park, S.Y.; **Bharat Bhusan Patnaik**, Kim, C.; Kim, S.; Nam, M-M.; Lee, J.B.; Wang, T.H.; Park, E.B.; Yi, S.S.; Han, Y.S.; Lee, J-S.; Park, H.S.; Lee, Y.S. (2015). Expressed sequence tag analysis and annotation of genetic information from the freshwater clam, *Pisidium (Neopisidium) coreanum* endemic to Korea. *Genes and Genomics*, 37, 1041-1049. DOI: <http://dx.doi.org/10.1007/s13258-015-0345-7> (IF-0.596).
- ✚ Jeong, J.E.; **Bharat Bhusan Patnaik**, Kang, S.W.; Hwang, H-J.; Park, S.Y.; Wang, T.H.; Park, E.B.; Lee, J.B.; Nam, M-M.; Jo, Y.H.; Han, Y.S.; Lee, J-S.; Park, H.S.; Lee, Y.S. (2015) Characterization of *Physa acuta* expressed sequence tags and transcript mining following cadmium exposure. *Genes and Genomics*, 37, 1017-1025. DOI: <http://dx.doi.org/10.1007/s13258-015-0334-x> (IF-0.596)
- ✚ Lee J.H.; Jo, Y.H.; **Bharat Bhusan Patnaik**, Park, K.B.; Tindwa, H.; Seo, G.W.; Chandrasekar, R.; Lee, Y.S.; Han, Y.S. (2015) Cloning, expression analysis, and RNA interference study of a HORMA domain containing autophagy-related gene 13 (ATG13) from the coleopteran beetle, *Tenebrio molitor*. *Frontiers in Physiology*, 6, Article 180. DOI: <http://dx.doi.org/10.3389/fphys.2015.00180> (IF-3.5).
- ✚ S Jung, E-G.; Han, K-I.; Hwang, S.G.; Kwon, H-J.; **Bharat Bhusan Patnaik**, Kim, Y.H.; Han, M.D. (2015). Brazilin isolated from *Caesalpinia sappan* L. inhibits rheumatoid arthritis activity in a type-II collagen induced arthritis mouse model. *BMC Complementary and Alternative Medicine*- Biomed Central- Online. DOI: <http://dx.doi.org/10.1186/s12906-015-0648-X> (IF-2.02)
- ✚ Tindwa, H.; Jo, Y.H.; **Bharat Bhusan Patnaik**; Lee, Y.S.; Kang, S.S.; Han, Y.S. (2015). Molecular cloning and characterization of autophagy-related gene TmAtg8 in *Listeria*-invaded hemocytes of *T. molitor*. *Developmental and Comparative Immunology*- Online. DOI: <http://dx.doi.org/10.1016/j.dci.2015.02.017> Elsevier (IF-2.815).

- ✚ **Bharat Bhusan Patnaik**, Patnaik, H.H.; Lee, Y.S.; Lee, B.L.; Han, Y.S. (2015). Silencing of *T. molitor* apolipoprotein-III is manifested in abnormal adult phenotype and is required for survival against *Listeria monocytogenes* in a dose-dependent manner. *Entomological Research*- DOI: <http://dx.doi.org/10.1111/1748-5967.12099> Wiley (IF-0.33)
- ✚ Jung, E.G.; Han, K.I.; Kwon, H.J.; **Bharat Bhusan Patnaik**; Kim, W.J.; Hur, G.M.; Nam, K.W.; Han, M.D. (2015) Anti-inflammatory activity of sappanchalcone isolated from *Caesalpinia sappan* L. in a collagen-induced arthritis mouse model. *Archives of Pharmacal Research*- Online first. DOI: <http://dx.doi.org/10.1007/s12272-015-0557-z> (Springer) (IF-1.751).
- ✚ Tindwa, H.; Jo, Y.H.; **Bharat Bhusan Patnaik**, Kim, D.H.; Lee, Y.S.; Lee, B.R.; Kim, N.J.; Kim, I.; Han, Y.S.(2015). Depletion of autophagy-related genes, ATG3 and ATG5 in *Tenebrio molitor* leads to decreased survivability against an intracellular pathogen, *Listeria monocytogenes*. *Archives of Insect Biochemistry and Physiology* – 88(1): 85-99. <http://dx.doi.org/10.1002/arch.21212> (Wiley) (IF 1.10).
- ✚ Han, K.I.; Kim, Y.H.; Hwang, S.G.; Jung, E.G.; **Bharat Bhusan Patnaik**, Han, Y.S.; Nam, K.W.; Kim, W. J.; Han, M.D. (2014). Bacterial community dynamics of salted and fermented shrimp based on denaturing gradient gel electrophoresis. *Journal of Food Science*- 79(12): M2516-M2522. <http://dx.doi.org/10.1111/1750-3841.12707> Wiley (IF-1.775).
- ✚ Han, K.I.; **Bharat Bhusan Patnaik**, Cho, Ah-ra.; Lim, H.K.; Lee, J.M.; Jang, Y.G.; Jeong Y.S.; Yoo T.K.; Lee G.S.; Han, M.D. (2014). Characterization of chitinase-producing *Serratia* and *Bacillus* strains isolated from insects. *Entomological Research* 44: 109-120. <http://dx.doi.org/10.1111/1748-5967.12056> (Wiley) (IF- 0.33).
- ✚ **Bharat Bhusan Patnaik**, Patnaik, H.H.; Seo, G.W.; Jo, Y.H.; Lee, Y.S.; Lee, B.R.; Han, Y.S. (2014). Gene structure, cDNA characterization and RNAi-based functional analysis of a myeloid differentiation factor 88 homolog in *Tenebrio molitor* larvae exposed to *Staphylococcus aureus* infection. *Developmental and Comparative Immunology* 46(2): 208-221. <http://dx.doi.org/10.1016/j.dci.2014.04.009> Elsevier (IF 3.75).
- ✚ Kim, Y.H.; Lee, H.S.; Kwon, H.J.; **Bharat Bhusan Patnaik**, Nam, K.W.; Han, Y.S.; Bang, I.S.; Han, M.D.(2014). Effects of different selenium levels on growth and regulation of laccase and versatile peroxidase in white-rot fungus, *Pleurotus eryngii*. *World Journal of Microbiology and Biotechnology* 30(7): 2101-2109. DOI: <http://dx.doi.org/10.1007/s11274-014-1636-x> Springer (IF 1.262).
- ✚ Han, K.I.; **Bharat Bhusan Patnaik**, Kim, Y.H.; Kwon, H.J.; Han, Y.S.; Han, M.D. (2014). Isolation and characterization of novel chitinase-producing *Bacillus* and *Paenibacillus* strains from Salted and Fermented Shrimp, *Acetes japonicus*. *Journal of Food Science* 79(4): 665-674. DOI: <http://dx.doi.org/10.1111/1750-3841.12387> - Wiley (IF-1.775).

- ✚ Jo, Y.H.; **Bharat Bhusan Patnaik**, Kang, S.W.; Chae, S.H.; Oh, S.H.; Kim, D.H.; Noh, M.Y.; Seo, G.W.; Jeong, H.C.; Noh, J.Y.; Jeong, J.E.; Hwang, H. J.; Ko, K.; Han, Y.S.; Lee, Y.S. (2014) Analysis of the genome of a Korean isolate of the *Pieris rapae* granulovirus enabled by its separation from total host genomic DNA by pulse-field electrophoresis. *PLoS One* 8(12):e84183. <http://dx.doi.org/10.1371/journal.pone.0084183> (IF 3.73).
- ✚ Noh, J.Y.\*;**Bharat Bhusan Patnaik**\*;Tindwa, H.; Seo, G.W.; Kim, D.H.; Patnaik, H.H.; Jo, Y.H.; Lee, Y.S.; Lee, B.L.; Kim, N.J.; Han, Y.S. (2014). Genomic organization, sequence characterization and expression analysis of *Tenebrio molitor* apolipoprotein-III in response to an intracellular pathogen, *Listeria monocytogenes*. *Gene* (SCI-Elsevier), 534: 204-217. (IF 2.2).<http://dx.doi.org/10.1016/j.gene.2013.10.058>. \*Equal contributions
- ✚ **Bharat Bhusan Patnaik**, Kang, S.M.; Seo, G.W.; Lee, H.J.; Patnaik, H.H.; Jo, Y.H.;Tindwa, H.; Jeong, J.E.; Lee, Y.S.; Lee, B.L.; Kim, N.J.; Bang, I.S.; Han, Y.S. (2013). Molecular cloning, sequence characterization and expression analysis of a CD63 homologue from the coleopteran beetle, *Tenebrio molitor*. *International Journal of Molecular Sciences*– 14: 20744-20767(IF 2.45). <http://dx.doi.org/10.3390/IJMS/141020744>.
- ✚ Tindwa, H.; **Bharat Bhusan Patnaik**, Kim, D.H.; Mun, S.; Jo, Y.H.; Lee, B.L.; Lee, Y.S.; Kim, N.J.; Han, Y.S. (2013). Cloning, characterization and effect of *TmPGRP-LE* gene silencing on survival of *Tenebrio molitor* against *Listeria monocytogenes* infection. *International Journal of Molecular Sciences*– 14: 22462-22482 (IF 2.45). <http://dx.doi.org/10.3390/IJMS/141122462>.
- ✚ Park, B.M.; **Bharat Bhusan Patnaik**, Oh, S.H.; Kim, D.H.; Jo, Y.H.; Jeong, H.C.; Lee, Y.S.; Ko, K.; Kim, I.; Han, Y.S. (2013). Expression analysis and immunohistochemical localization of putative tumor suppressor QM homologue from the cabbage butterfly, *Pieris rapae*. *Entomological Research* (SCI-E)-Wiley-Blackwell, 43(5): 262-270.<http://dx.doi.org/10.1111/1748-5967.12035> (IF-0.33).
- ✚ Kim, D.H.; **Bharat Bhusan Patnaik**, Seo, G.W.; Kang, S.M.; Lee, Y.S.; Lee, B.L.; Han, Y.S. (2013). Identification and expression analysis of a novel R-type lectin from the coleopteran beetle, *Tenebrio molitor*. *Journal of Invertebrate Pathology* (IF 2012-2.669) - Elsevier, 114(3): 226-229.<http://dx.doi.org/10.1016/J.JIP.2013.08.002>.
- ✚ Saha, A.K.; Kumar, N.S.; Chakraborty, S.; **Bharat Bhusan Patnaik**, Nayak, S.K.; Roy, S.; Bindroo, B.B. (2013). Reproductive performance of breeds and hybrid of silkworm, *Bombyx mori* L. with special reference to egg laying rhythmicity. *International Journal of Industrial Entomology* (IF 2012-0.269), 26(1): 22-30. <http://dx.doi.org/10.7852/ijie.2013.26.1.022>.
- ✚ Jeong, J.E.; Kang, S.W.; Hwang, H.J.; Chae, S.H.; **Bharat Bhusan Patnaik**, Han, Y.S.; Lee, J.B.; Jo, Y.H.; Lee, B.L.; Seog, D.H.; Lee, Y.S. (2013). Expressed sequence tags (ESTs) analysis of *Tenebrio molitor* larvae. *Entomological Research* (Wiley-Blackwell), 43(3): 162-170. (SCI-E), <http://dx.doi.org/10.1111/1748-5967.12019> (IF-0.33).



- ✚ Oh, S.H.; Kim, D.H.; **Bharat Bhusan Patnaik**, Jo, Y.H.; Noh, M.Y.; Lee, H.J.; Lee, K.H.; Yoon, K.H.; Kim, W.J.; Noh, J.Y.; Jeong, H.C.; Lee, Y.S.; Zhang, C.X.; Han, Y.S. (2013). Molecular and immunohistochemical characterization of chitinase gene from *Pieris rapae* granulovirus. *Archives of Virology*, 158(8): 1701-1718. (IF 2.111) - Springer. <http://dx.doi.org/10.1007/s00705-013-1649-z>.
- ✚ Oh, S.H.; Kim, D.H.; **Bharat Bhusan Patnaik**, Jo, Y.H.; Noh, M.Y.; Lee, H.J.; Lee, K.H.; Yoon, K.H.; Kim, W.J.; Noh, J.Y.; Jeong, H.C.; Lee, Y.S.; Zhang, C.X.; Han, Y.S. (2013). Molecular and Immunohistochemical characterization of granulin gene encoded in *Pieris rapae* granulovirus genome. *Journal of Invertebrate Pathology*, 113(1): 7-17. (IF 2.669)- Elsevier. <http://dx.doi.org/10.1016/j.jip.2012.12.003>.
- ✚ Das, G.C.; **Bharat Bhusan Patnaik**, Nath, D. (2013). Fitness components of bivoltine breed CSR2 after introgression of multivoltine thermotolerance character of silkworm *Bombyx mori* L. *International Journal of Scientific and Engineering Research*(IF 1.4) (Hazelhurst, Houston, Texas, USA), 4(1).
- ✚ **Bharat Bhusan Patnaik**, Kim, D.H.; Oh, S.H.; Song, Y.S.; Chanh, N.D.M.; Kim, J. S.; Jung, W.J.; Saha, A.K.; Bindroo, B.B.; Han, Y.S. (2012). Molecular cloning and characterization of novel germin-like protein gene from *Morus alba* which encodes for a gut digestion-resistant antimicrobial protein. *PLoS ONE* 7(12): e50900 (IF3.73). Public Library of Science, USA. <http://dx.doi.org/10.1371/journal.pone.0050900>.
- ✚ **Bharat Bhusan Patnaik**, Biswas, T.D.; Nayak, S.K.; Saha, A.K.; Majumdar, M.K. (2012). Esterase isozymic variations, specific and non-specific esterase in developed multivoltine and bivoltine breeds of Silkworm, *Bombyx mori* L. *Journal of Environmental Biology*, Vol. 33 (5): 851-858. (IF0.68).
- ✚ **Bharat Bhusan Patnaik**, Saha, A.K.; Bindroo, B.B.; Han, Y.S. (2012) Lectins as possible candidates towards anti-microbial defense in Silkworm, *Bombyx mori* L. *African Journal of Biotechnology* (Academic Press), Vol. 11(50), 11045-11052. (IF 0.58). <http://dx.doi.org/10.5897/AJB11.3985>.
- ✚ **Bharat Bhusan Patnaik**, Howrelia, H.J.; Mathews, T.; Selvanayagam, M. (2011). Histopathology of Gill, Liver, Muscle and Brain of *Cyprinus carpio communis* L. exposed to sublethal concentration of Lead and Cadmium. *African Journal of Biotechnology*, 10(57), 12218-12223. (IF 0.58).
- ✚ Howrelia, H.J.; **Bharat Bhusan Patnaik**, Selvanayagam, M.; Rajakumar, S. (2011). Impact of temperature stress on heat shock protein expression in *Bombyx mori* cross-breed and its impact on biological and commercial traits. *Journal of Environmental Biology*, Vol. 32 (1), 99-103. (IF 0.68). PMID: 21888240.
- ✚ **Bharat Bhusan Patnaik**, Roy, A.; Agarwal, S.; Bhattacharya, S. (2010). Induction of Oxidative stress by non-lethal dose of mercury in rat liver: Possible role in apoptosis induction. *Journal of Environmental Biology* Vol. 31 (4), 413-416. (IF 0.68). PMID: 21186712.

- ✚ K. Loganathan, B. Velmurugan, Howrelia H.J.; M. Selvanayagam,; **Bharat Bhusan Patnaik** (2005) Zinc induced Histological changes in Brain and Liver of *Labeo rohita*, *Journal of Environmental Biology*, 27 (1), 107-110 IF- **0.64**

## Book Chapters

- ✚ Raman, C.; Brintha, P.G.; Park, E.Y.; Pelsoi, P.; Liu, F.; Goldsmith, M.; Ejiofor, A.; Pittendrigh, B.R.; Han, Y.S.; Noriega, F.G.; Sugumaran, M.; Tyagi, B.K.; Gui, Z.Z.; Zhu, F.; **Bharat Bhusan Patnaik**; Michailova, P. (2014). Introduction to Molecular Biology. In: *Short views on Insect Biochemistry and Molecular Biology* (Ed. Raman, C., Tyagi, B.K., Gui, Z.Z., Reeck, G.R), Vol.1, October, 2014, Kansas State University Press, USA. Pp. 3-55.
- ✚ **Bharat Bhusan Patnaik**, Raman, C.; Han, Y.S. (2014). Molecular expression and structure-function relationships of apolipoprotein III in insects with special reference to innate immunity. In: *Short views on Insect Biochemistry and Molecular Biology* (Ed. Raman, C., Tyagi, B.K., Gui, Z.Z., Reeck, and G.R), Vol.1, October, 2014, Kansas State University Press, USA.
- ✚ **Bharat Bhusan Patnaik**, Song, Y.S.; Kim, D.H.; Oh, S.H.; Jung, W.J.; Kim, J.S.; Han, Y.S. (2012). Evaluation of antibacterial activity of a novel protein purified from silkworm fecal extract. In: *Asia Perspectives and Insights-Development through collaborations* (Ed. Zhongfa, M., Chen, X., Solongo Algae), Seoul Publishing House (ISBN 978-89-5930-307-6), pp. 653-668.

## Abstracts

- ✚ 30<sup>th</sup> Anniversary Meeting and International Symposium of Korean Society of Biotechnology and Bioengineering- Shifting gears from Academia to Industry (2015)
- Abstracts
- Comprehensive genome sequencing and comparative annotation of a probiotic bacterium, *Bacillus polyfermenticus* isolated from Bispan, a commercial mixed strain product.
- Functionally-relevant expressed sequence tags from the biomarker organism, *Physa acuta* exposed to cadmium.
- Transcriptomic analysis of endangered freshwater mussel *Cristaria plicata* provides valuable resource for species conservation.
- Expressed sequence tags from the threatened freshwater sphaeriid clam species, *Pisidium (Neopisidium) coreanum*: Discovery of functional genomic resources.
- ✚ **Bharat Bhusan Patnaik**, Patnaik, H.H.; Jo, Y.H.; Tindwa, H.; Lee, B.L.; Lee, Y.S.; Han, Y.S. (2014) Molecular screening, characterization and expression of genes participating in immune defense mechanisms of a coleopteran pest, *Tenebrio molitor*. *Oral presentation* at First Asian Invertebrate Immunology Symposium, Feb. 14th – Feb. 19th, 2014, Busan, South Korea.

*Poster presentations* at First Asian Invertebrate Immunology Symposium, Feb. 14th – Feb. 19th, 2014, Busan, South Korea

- I. Identification of a bacteria-inducible apolipoprotein-III homologue from *T. molitor* larvae: Genome organization and sequence-structure relationships. (pg. 29).
  - II. Molecular cloning and characterization of target of rapamycin (TmTOR) in coleopteran insect, *T. molitor*. (pg. 33).
  - III. Molecular characterization and expression profiles of a tetraspanin membrane protein, CD63 from the coleopteran pest, *T. molitor*. (pg. 36).
  - IV. Knockdown of a peptidoglycan recognition protein-LE homologue by RNA interference leads to increased susceptibility of *Tenebrio* larvae to *Listeria monocytogenes* infection: Molecular characterization and expression analysis. (pg. 39).
  - V. Gene structure analysis, cDNA characterization and silencing of a myeloid differentiation factor 88 homologue leads to susceptibility of *T. molitor* larvae against *Staphylococcus aureus* infection. (pg. 42).
  - VI. RNA-seq and expressed sequence tag based identification of autophagy-related genes in the coleopteran model insect, *T. molitor*. (pg. 44).
  - VII. Depletion of autophagy-related genes, ATG3 and ATG5 in *T. molitor* leads to decreased survivability against an intracellular pathogen, *L. monocytogenes*. (pg. 47).
  - VIII. Cloning, expression analysis and subcellular localization of Tm 14-3-3zeta in coleopteran insect, *T. molitor* (pg. 50)
- ✚ H. Tindwa, D.H. Kim, **Bharat Bhusan Patnaik**, S.G. Mun, S.G. Kim, J.H. Seong, Y.S. Lee, B. R. Lee and Y.S. Han 2013. A novel PGRP-LE homologue in *Tenebrio molitor* is critical towards sensing and control of an intracellular pathogen *Listeria monocytogenes*. Entomological Society of Korea Conference, Busan, Korea, pp.20.
- ✚ H. Tindwa, D.H. Kim, **Bharat Bhusan Patnaik**, S.G. Mun, S.G. Kim, J.H. Seong, Y.S. Lee, B. R. Lee and Y.S. Han 2013. Cloning and partial characterization of autophagy-related genes ATG3 and ATG8 from *Tenebrio molitor*. Entomological Society of Korea Conference, Busan, Korea, pp.74.
- ✚ **Bharat Bhusan Patnaik**, Bo Mi Park, Seung Han Oh, Dong Hyun Kim and Yeon Soo Han 2012. Molecular characterization and structure analysis of a putative tumor suppressor QM homologue from the cabbage butterfly *Pieris rapae*. *Journal of Biotechnology and Biomaterials*, 2: 6. DOI: <http://dx.doi.org/10.4172/2155-952X.S1.021>.
- ✚ **Bharat Bhusan Patnaik**, Yong-Su Song, Dong Hyun Kim, Seung Han Oh, Woo Jin Jung, Jong Sun Kim and Yeon Soo Han 2012. Antibacterial activity of functionally characterized novel protein from silkworm fecal extracts. Conference of Entomological Society of Korea, Chonbuk National University, Jeonju, South Korea. Pp. 20.
- ✚ Hongray Howrelia Patnaik, **Bharat Bhusan Patnaik**, Dong Hyun Kim, Seongmin Kang, Yong Seok Lee, Bok-Leul Lee, Nam Jeong Kim and Yeon Soo Han 2012. Sequence analysis and characterization of adaptor protein MyD88 from a coleopteran beetle,



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- ✚ Yong Hun Jo, Seung Han Oh, Bo Mi Park, Dong Hyun Kim, Bharat Bhusan Patnaik, Ho Beom Lee, Hun Cheon Jeong, Yong Seouk Lee, Kisung Ko, Iksoo Kim and Yeon Soo Han 2011. Cloning and expression profiles of tumor suppressor QM homologue in response to granulovirus in *Pieris rapae*. *Entomological Research* (Wiley-Blackwell), 41(6), pp. 293 (Indexed in SCI expanded) First Online on 17<sup>th</sup> November, 2011, DOI: 10.1111/j.1748-5967.2011.00422.X.
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- ✚ Yong Hun Jo, Dong Hyun Kim, Seung Ah Oh, Seung Ah Jeon, **Bharat Bhusan Patnaik**, Ho Beom Lee, Hun Cheong Jeon, Yong Seouk Lee, Kisung Ko, In Seok Bang, Iksoo Kim and Yeon Soo Han 2011. Molecular cloning and expression profiling of FK506-binding protein 12, an immunophilin from the cabbage butterfly, *Pieris rapae*. *Entomological Research* (Wiley-Blackwell), 41(6), pp. 296. **(Indexed in SCI expanded), First online on 17<sup>th</sup> November, 2011, DOI: 10.1111/j.1748-5967.2011.00429.X.**
- ✚ Studies on the esterase zymographic variations in some developed potential bivoltine breeds of silkworm, *Bombyx mori* L. with special reference to heat-stable esterases (2011) – Proceedings of UGC National Conference on Advances in Environmental Research: An Interdisciplinary Approach, Annamalai University, pp 83-84.
- ✚ Improvement of productive bivoltine 'CSR2' through introgression of thermostable factors from indigenous multivoltine breeds of silkworm, *Bombyx mori* L. (2011)- Proceedings of UGC National Conference on Advances in Environmental Research: An Interdisciplinary Approach, Annamalai University, pp 84-85.

## Professional / Academic Affiliation

- ✚ Served as an active member of:
  - Asian Federation of Biotechnology, South Korea
  - Korea Foundation for Advanced Studies, Seoul, South Korea
  - Advisory Board Member (Biochemistry) of Webmed Central, UK
  - Science Advisory Board (Membership No. 57269; Since April, 2002)
  - European Federation of Biotechnologists
  - Society of Toxicologists
- ✚ Acted as:
  - Editor-Entomological Research

- Editorial Board Member for Journal of Applied Biotechnology (ISSN 2327-0640) – Macrothink Institute, Las Vegas, USA
- External Examiner for Ph.D candidates under University of Madras Regulations

 Worked as Reviewer for:

- Rubriq, Durham, North Carolina, USA (Sister concern for American Journal Experts)
- Journal of Hazardous Materials (Elsevier publications) ISSN: 0304-3894; Impact Factor - 4.144 & 4.360
- Ecotoxicology and Environmental Safety (Elsevier publications) ISSN: 0147-6513; Impact factor: 2.294; Impact factor - 2.617
- PLoS One (IF-3.73) and Frontiers (Nature Publishing Group)
- African Journal of Pharmacy and Pharmacology, African Journal of Biotechnology, Agriculture Science Research Journal, African Journal of Food Science, Journal of Medicinal Plants Research (ISI Indexed - Academic Journals)
- Journal of Human Ecology (Kre publishers, Delhi, India)

 Sequence Authorship

- *M. Alba* Germin like Protein Gene – ENA-EMBL
- *T. Molitor* Tetraspanin (CD63) - ENA-EMBL
- *T. Molitor* Apolipoprotein-III - ENA-EMBL
- *T. Molitor* Ricin-Type Lectin –ENA-EMBL
- *T. Molitor* Myeloid Differentiation Factor 88 – ENA-EMBL
- *T. Molitor* Peptidoglycan Recognition Protein-LE – ENA-EMBL
- *T. Molitor* Scavenger Receptor - GenBank
- *T. Molitor* 14-3-3-zeta – GenBank
- *T. Molitor* ATG3 and ATG5 (autophagy -related) – Gen Bank
- *Pieris rapae* granulovirus – Korean isolate (Whole-genome sequence)

## Motivational note

Take risks in life. If you succeed you will be a leader, if you fail you will still be a guide.