



Assoc. Prof. Dr. Hwang Jung Shan
BSc., BSc. (Hons), PhD (Science)

Position:
Head, Research Development

Email:
hwangjs@sunway.edu.my

Hwang Jung Shan obtained her PhD at the University of Melbourne, Australia in 1998. During her PhD, she was working on gene regulation of transcription factor in *Escherichia coli*, in particular, the DNA-protein interaction. After graduation, she then received JSPS Postdoctoral Fellowship for two years and worked on the RNA polymerase of influenza virus at the Department of Molecular Genetics, National Institute of Genetics, Japan. She then went on to do her research at the same institute but in the Center for Information Biology. She spent the next ten years and studied the regeneration of planaria and the gene function of cnidarians, where she published in noted journals such as "Nature", "Proceedings of the National Academy of Sciences USA" and "Trends in Genetics". Hwang came back to Malaysia in 2010 and joined the Faculty of Applied Sciences, UCSI University where she was appointed as the Head of Postgraduate Studies (2011-2014) and the Deputy Dean (2013-2016). Her line of research focuses on the construction of immunotoxin for the treatment of rheumatoid arthritis by targeting the inflammatory macrophages. She is also working on the genetic polymorphism in rheumatoid arthritis patients who give different responses to anti-rheumatoid arthritis drugs.

Teaching Experience:

Hwang Jung Shan has 6 years of teaching experience for both undergraduate and postgraduate students in human molecular genetics and molecular cell biology. She also conducted courses such as laboratory management, bioinformatics tools for postgraduate students.

Research Interests:

- Cnidarian toxins
- Toxin therapy
- Rheumatoid arthritis
- Molecular genetics and genomics
- Gene expression

Scholarly Activities/ Industry Experience

- Reviewer of GENE
- Reviewer of FEBS Letters
- Postdoctoral Fellowships for Foreign Researchers (Japan Society for the Promotion of Science, JSPS), March 1998 ~ February 2000
- Best Papers Award in 73rd Annual Meeting of the Genetics Society of Japan, September 2001

- PI of FRGS (MOHE) with the project entitled “Investigation of the Specific binding of pore-forming toxin to human cell membrane”
- Visiting Scientist at Centre for Organismal Studies Heidelberg, University of Heidelberg, April 2014.
- MSMBB International Meeting: International Conference on Molecular Biology and Biotechnology (ICMBB), Kuala Lumpur, Malaysia. March 9-11, 2015.

Selected Publications:

- S.Hayakawa, Y.Takaku, **J.S.Hwang**, T.Horiguchi, H.Suga, W.Gehring, K.Ikeo, T.Gojobori (2015) Function and evolutionary origin of unicellular camera-type eye structure. PLOS ONE 10, e0118415.
- Y.J.M.Liew, W.T.Soh, W.F.Jiemy, **J.S.Hwang** (2015) Mutagenesis and Functional Analysis of the Pore-Forming Toxin HALT-1 from *Hydra magnipapillata*. Toxins, 7, 407-422.
- Y.Takaku, **J.S.Hwang**, A.Wolf, A Böttger, H.Shimizu, C.N.David, T.Gojobori (2014) Innexin gap junctions in nerve cells coordinate spontaneous contractile behavior in *Hydra* polyps. Sci. Rep. 4, 3573.
- **J.S.Hwang**, Y.Takaku, T.Momose, P.Adamczyk, S.Özbek, K.Ikeo, K.Khalturin, G.Hemmerich, T.C.G.Bosch, T.W.Holstein, C.N.David, & T.Gojobori (2010) Nematogalectin, a nematocyst protein with GlyXY and galectin domains, demonstrates nematocyte-specific alternative splicing in *Hydra*. Proc. Natl Acad. Sci. U.S.A. 107, 18539-18544.
- P.Adamczyk, C.Zenkert, PG.Balasubramanian, S.Yamada, S.Murakoshi, K.Sugahara, **J.S.Hwang**, T.Gojobori, T.W. Holstein & S.Özbek (2010) A non-sulfated chondroitin stabilizes membrane tubulation in cnidarian organelles. J. Biol. Chem. 285, 25613-25623.
- J.A.Chapman, E.F.Kirkness, O.Simakov, S.E.Hampson, T.Mitros, T.Weinmaier, T.Rattei, P.G.Balasubramanian, J.Borman, D.Busam, K.Disbennett, C.Pfannkoch, N.Sumin, G.G.Sutton, L.D.Viswanathan, B.Walenz, D.M. Goodstein, U.Hellsten, T.Kawashima, S.E.Prochnik, N.H.Putnam, S.Shu, B.Blumberg, C.E.Dana, L.Gee, D.F.Kibler, L.Law, D.Lindgens, D.E.Martinez, J.Peng, P.A.Wigge, B.Bertulat, C.Guder, Y.Nakamura, S.Ozbek, H.Watanabe, K.Khalturin, G.Hemmerich, A.Franke, R.Augustin, S.Fraune, E.Hayakawa, S.Hayakawa, M.Hirose, **J.S.Hwang**, K.Ikeo, C.Nishimiya-Fujisawa, A.Ogura, T.Takahashi, P.R.H.Steinmetz, X.Zhang, R.Aufschnaiter, M.K.Eder, A.K.Gorny, W.Salvenmoser, A.M.Heimberg, B.M.Wheeler, K.J.Peterson, A.Böttger, P.Tischler, A.Wolf, T.Gojobori, K.A.Remington, R.L.Strausberg, J.C.Venter, U.Technau, B.Hobmayer, T.C.G.Bosch, T.W.Holstein, T.Fujisawa, H.R.Bode, C.N.David, D.S.Rokhsar & R.E.Steele. (2010) The dynamic genome of *Hydra*. Nature 464, 592-596.
- N.J.Oviedo, J.Morokuma, P.Walenteck, I.P.Kema, M.B.Gu, J.M.Ahn, **J.S.Hwang**, T.Gojobori & M. Levin (2010) Long-range neural and gap junction protein-mediated cues control polarity during planarian regeneration. Dev. Biol. 339, 188-199.
- C.N.David, S.Özbek, P.Adamczyk, S.Meier, B.Pauly, J.Chapman, **J.S.Hwang**, T.Gojobori, T.W.Holstein (2008) Evolution of complex structures: minicollagens shape the cnidarian nematocyst. Trends Genet. 24, 431-438.
- **J.S.Hwang**, Y.Takaku, J.Chapman, K.Ikeo, C.N.David, T.Gojobori (2008) Cilium evolution: Identification of a novel protein, nematocilin, in the mechanosensory cilium of *Hydra* nematocytes. Mol. Biol. Evol. 25, 2009-2017.
- **J.S.Hwang**, H.Ohyanagi, S.Hayakawa, N.Osato, C.Nishimiya-Fujisawa, K.Ikeo, C.N.David, T.Fujisawa, T.Gojobori (2007) The evolutionary emergence of cell type-specific genes inferred from the gene expression analysis of *Hydra*. Proc. Natl. Acad. Sci. USA. 104, 14735-14740.

Professional Membership/ Affiliations:

- Member of Malaysian Society For Molecular Biology & Biotechnology