**Hung Vu-Khac**



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**About me**

I am interested in the biological and molecular characteristics of bacteria and viruses in animals including aquatic animals. Most of my applied studies are to produce conventional and new-generation vaccines against infectious diseases in Vietnam. My recent priorities are to transfer the knowledge and scientific research results into teaching materials, and contribute to improving the quality of training programs, especially in the field of molecular biology diagnostics, immunology and the development of vaccines in Vietnam.

**Qualifications**

2007 - 2009: Postdoc (Veterinary), Wyoming University, America

2005 - 2006: Postdoc (Veterinary), Veterinary University Iowa, America

2001 - 2004: PhD (Microbiology), Veterinary University Komenskeho, Slovak Republic

1997 - 1999: Master’s Degree (Veterinary), the National University of Agriculture, Vietnam

1988 - 1992: Bachelor's Degree (Veterinary), the National University of Agriculture, Vietnam

**Employment**

10/2022 to now: Director of Institute for Veterinary Research and Development of central Vietnam (IVRD)

2010 - 9/2022: Vice director of IVRD

2010 - 2017: Dean of Biotechnology Department, IVRD

1992 - 1997: Researcher, Department of Bacteriology, IVRD

**Research expertise**

Biotechnology, Veterinary, Disease diagnosis, Infectious and emerging diseases, Vaccine development, Immulogy, Aquatic animal health

**Languages**

* Vietnamese (native)
* English (fluent)

**Projects**

1. Producing bivalent inactivated vaccine against Parvovirus and *Erysipelothrix rhusiopathiae* in swine, funded by Ministry of Agriculture and Rural Development, (**Principal investigator,** 2022-2025)
2. Develop a recombinant vaccine against *Pasteurellosis* cause by *Pasteurella multocida* in swine, funded by Ministry of Agriculture and Rural Development, (**Principal investigator,** 2017-2019)
3. Study pathology of Microsporidian caused by *Enterocytozoon hepatopenaei* in brackish water shrimps, funded by Ministry of Agriculture and Rural Development, (**Principal investigator,** 2016-2017)
4. Investigate the prevalence of Porcince Reproductive respiratory syndrome disease, determine the resistance ability against the disease in pigs vaccinated against swine cholera, pasteurellosis and typhoid fever and propose the prevention strategies for pigs bred in Khanh Hoa, funded by Science and Technology Khanh Hoa, (**Principal investigator,** 2014-2016)
5. Study pathology of White Spot Disease on Snub-nose Pompano and assess the transmission to some terrestrial animals in Vietnam's South Central provinces. Ministry of Agriculture and Rural Development, (**Principal investigator,** 2013-2016)
6. Research to develop recombinant vaccine against Edema disease and Salmonellosis in pigs. Ministry of Agriculture and Rural Development, (**Principal investigator,** 2013-2014)
7. Study pathology of diarrhoea in dairy calves caused by *E.coli,* *Salmonella, Clostridium perfringens* and develop preventive biologicals. Ministry of Agriculture and Rural Development, (**Researcher,** 2007-2009)

**Publications**

**Journal articles**

1. Nguyen, H.T., Nguyen, T.T.T., Chen, Y.C., **Vu‐Khac, H.**, Wang, P.C. and Chen, S.C., 2018. Enhanced immune responses and effectiveness of refined outer membrane protein vaccines against *Vibrio harveyi* in orange‐spotted grouper (*Epinephelus coioides*). *Journal of fish diseases*, *41*(9), pp.1349-1358. *DOI:*[*10.1111/jfd.12828*](https://doi.org/10.1111/jfd.12828)
2. Thanh, H.D., Nguyen, D.T., **Hung, V.K.** and Kim, W., 2018. Novel reassortant H5N6 highly pathogenic influenza A viruses in Vietnamese quail outbreaks. *Comparative Immunology, Microbiology and Infectious Diseases*, *56*, pp.45-57. *DOI:*[*10.1016/j.cimid.2018.01.001*](https://doi.org/10.1016/j.cimid.2018.01.001)
3. Nguyen, T.T.T., Nguyen, H.T., **Vu-Khac, H.**, Wang, P.C. and Chen, S.C., 2018. Identification of protective protein antigens for vaccination against *Streptococcus dysgalactiae* in cobia (*Rachycentron canadum*). *Fish & shellfish immunology*, *80*, pp.88-96. *DOI:*[*10.1016/j.fsi.2018.05.052*](https://doi.org/10.1016/j.fsi.2018.05.052)
4. Nguyen, T.H., Than, V.T., Thanh, H.D., **Hung, V.K.**, Nguyen, D.T. and Kim, W., 2016. Intersubtype reassortments of H5N1 highly pathogenic avian influenza viruses isolated from quail. *PLoS One*, *11*(2), p.e0149608. *DOI:*[*10.1371/journal.pone.0149608*](https://doi.org/10.1371/journal.pone.0149608)
5. **Vu-Khac, H.**, Chen, S.C., Pham, T.H., Nguyen, T.T.G. and Trinh, T.T.H., 2016. Isolation and genetic characterization of *Nocardia seriolae* from snubnose pompano *Trachinotus blochii* in Vietnam. *Diseases of aquatic organisms*, *120*(2), pp.173-177. *DOI:*[*10.3354/dao03023*](https://doi.org/10.3354/dao03023)
6. Nguyen, D.T., Bilic, I., Jaskulska, B., Hess, M., Le, D.Q., Le Hua, L.N., Huynh, V.V., Nguyen, S.T. and **Vu-Khac, H.**, 2015. Prevalence and genetic characterization of *Histomonas meleagridis* in chickens in Vietnam. *Avian diseases*, *59*(2), pp.309-314. *DOI:*[*10.1637/10964-102414-Reg*](https://doi.org/10.1637/10964-102414-reg)
7. Nguyen, T.D., Vo, T.T. and **Vu-Khac, H**., 2011. Virulence factors in *Escherichia coli* isolated from calves with diarrhea in Vietnam. *Journal of Veterinary Science*, *12*(2), pp.159-164. *DOI:*[*10.4142/jvs.2011.12.2.159*](https://doi.org/10.4142/jvs.2011.12.2.159)
8. **Vu-Khac, H.** and Miller, K.W., 2009. Regulation of mannose phosphotransferase system permease and virulence gene expression in Listeria monocytogenes by the EIItMan transporter. *Applied and environmental microbiology*, *75*(21), pp.6671-6678. *DOI:*[*10.1128/AEM.01104-09*](https://doi.org/10.1128/aem.01104-09)
9. **Vu-Khac, H.** and Cornick, N.A., 2008. Prevalence and genetic profiles of Shiga toxin-producing Escherichia coli strains isolated from buffaloes, cattle, and goats in central Vietnam. *Veterinary Microbiology*, *126*(4), pp.356-363. *DOI:*[*10.1016/j.vetmic.2007.07.023*](https://doi.org/10.1016/j.vetmic.2007.07.023)
10. **Vu Khac, H**., Holoda, E., Pilipcinec, E., Blanco, M., Blanco, J.E., Mora, A., Dahbi, G., López, C., González, E.A. and Blanco, J., 2006. Serotypes, virulence genes, and PFGE profiles of *Escherichia coli* isolated from pigs with postweaning diarrhoea in Slovakia. *BMC Veterinary Research*, *2*(1), pp.1-8. *DOI:*[*10.1186/1746-6148-2-10*](https://dx.doi.org/10.1186%2F1746-6148-2-10)
11. Holoda. [E.](https://pubmed.ncbi.nlm.nih.gov/?term=Holoda+E&cauthor_id=16110913) ,**Vu-Khac,** [**H.**](https://pubmed.ncbi.nlm.nih.gov/?term=Vu-Khac+H&cauthor_id=16110913) , Andrasková, [S.](https://pubmed.ncbi.nlm.nih.gov/?term=Andraskov%C3%A1+S&cauthor_id=16110913) , Chomová [Z.](https://pubmed.ncbi.nlm.nih.gov/?term=Chomov%C3%A1+Z&cauthor_id=16110913) , Wantrubová [A.](https://pubmed.ncbi.nlm.nih.gov/?term=Wantrubov%C3%A1+A&cauthor_id=16110913) , Krajnák [M.](https://pubmed.ncbi.nlm.nih.gov/?term=Krajn%C3%A1k+M&cauthor_id=16110913) , Pilipcinec [E.,](https://pubmed.ncbi.nlm.nih.gov/?term=Pilipcinec+E&cauthor_id=16110913) . PCR assay for detection and differentiation of K88ab(1), K88ab(2), K88ac, and K88ad fimbrial adhesins in *E. coli* strains isolated from diarrheic piglets.2005. Folia Microbiology. 50(2), pp. 107-112. DOI:[10.1007/BF02931457](https://doi.org/10.1007/bf02931457)
12. **Vu-Khac** [**H.**](https://pubmed.ncbi.nlm.nih.gov/?term=Vu-Khac+H&cauthor_id=16956777) , Holoda [E.](https://pubmed.ncbi.nlm.nih.gov/?term=Holoda+E&cauthor_id=16956777) , Pilipcinec [E.](https://pubmed.ncbi.nlm.nih.gov/?term=Pilipcinec+E&cauthor_id=16956777) , Blanco [M.](https://pubmed.ncbi.nlm.nih.gov/?term=Blanco+M&cauthor_id=16956777) , Blanco [J. E.](https://pubmed.ncbi.nlm.nih.gov/?term=Blanco+JE&cauthor_id=16956777) , Dahbi [G.](https://pubmed.ncbi.nlm.nih.gov/?term=Dahbi+G&cauthor_id=16956777) , Mora [A.](https://pubmed.ncbi.nlm.nih.gov/?term=Mora+A&cauthor_id=16956777) , López [C.](https://pubmed.ncbi.nlm.nih.gov/?term=L%C3%B3pez+C&cauthor_id=16956777) , González [E. A.](https://pubmed.ncbi.nlm.nih.gov/?term=Gonz%C3%A1lez+EA&cauthor_id=16956777) , Blanco [J.,](https://pubmed.ncbi.nlm.nih.gov/?term=Blanco+J&cauthor_id=16956777) . Serotypes, virulence genes, intimin types and PFGE profiles of  *Escherichia coli* isolated from piglets with diarrhoea. 2007. Veterinary Journal. 174,pp. 176-187.*DOI:*[*10.1016/j.tvjl.2006.05.019*](https://doi.org/10.1016/j.tvjl.2006.05.019)
13. [N. A. Cornick](https://pubmed.ncbi.nlm.nih.gov/?term=Cornick+NA&cauthor_id=18310419), [**H. Vu-Khac**](https://pubmed.ncbi.nlm.nih.gov/?term=Vukhac+H&cauthor_id=18310419)**.** [Indirect transmission of *Escherichia coli* O157:H7 occurs readily among swine but not among sheep.](https://pubmed.ncbi.nlm.nih.gov/18310419/) 2008. Applied and Environmental Microbiology. 74(8), pp.2488-2491 *DOI:* [*10.1128/AEM.02897-07*](https://doi.org/10.1128/aem.02897-07)
14. Nguyen T. D., Le [Q. D.](https://pubmed.ncbi.nlm.nih.gov/?term=Le+QD&cauthor_id=22071022) , Huynh [V. V.](https://pubmed.ncbi.nlm.nih.gov/?term=Huynh+VV&cauthor_id=22071022) , Nguyen [S. T.](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+ST&cauthor_id=22071022) , Nguyen [T. V.](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+TV&cauthor_id=22071022) , **Vu-Khac** [**H.**](https://pubmed.ncbi.nlm.nih.gov/?term=Vu-Khac+H&cauthor_id=22071022)  The development of PCR methodology for the identification of species of the tapeworm *Moniezia* from cattle, goats and sheep in central Vietnam. 2012. 86(4), pp.429-429. *DOI:* [*10.1017/S0022149X11000629*](https://doi.org/10.1017/s0022149x11000629)
15. **H. Vu-Khac, Thuy Nguyen T. T., Nguyen T. T., G., C. H. Le and Nguyen V. D..** Vertical transmission and early diagnosis of the microsporidian *Enterocytozoon hepatonaei* in whiteleg shrimp *Penaeus vannamei. 2018.* Journal of Pure and Applied Microbiology .12(3),pp.1125-1131. *DOI:*[*10.22207/JPAM.12.3.11*](http://dx.doi.org/10.22207/JPAM.12.3.11)
16. **Vu-Khac** [**H.**](https://pubmed.ncbi.nlm.nih.gov/?term=Vu-Khac+H&cauthor_id=32636585) , Trinh [T. T. H.](https://pubmed.ncbi.nlm.nih.gov/?term=Trinh+TTH&cauthor_id=32636585)  [1](https://pubmed.ncbi.nlm.nih.gov/32636585/#affiliation-1) , Nguyen [T. T. G.](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+TTG&cauthor_id=32636585)  [1](https://pubmed.ncbi.nlm.nih.gov/32636585/#affiliation-1) , Nguyen [X T.](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+XT&cauthor_id=32636585)  [1](https://pubmed.ncbi.nlm.nih.gov/32636585/#affiliation-1) , Nguyen [T. T.](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+TT&cauthor_id=32636585) . Prevalence of virulence factor, antibiotic resistance, and serotype genes of *Pasteurella multocida* strains isolated from pigs in Vietnam. 2020. Veterinary World Journal .13(5), pp.896-904. *DOI:* [*10.14202/vetworld.2020.896-904*](https://doi.org/10.14202/vetworld.2020.896-904)
17. [T. Thi Nguyen](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+TT&cauthor_id=33061245), [**H. Vu-Khac**](https://pubmed.ncbi.nlm.nih.gov/?term=Vu-Khac+H&cauthor_id=33061245), [T. D. Nguyen](https://pubmed.ncbi.nlm.nih.gov/?term=Nguyen+TD&cauthor_id=33061245).[Isolation and characterization of *Clostridium perfringens* strains isolated from ostriches (*Struthio camelus*) in Vietnam.](https://pubmed.ncbi.nlm.nih.gov/33061245/)2020. Veterinary World Journal. 13(8),pp.1679-1684. *DOI:* [*10.14202/vetworld.2020.1679-1684*](https://doi.org/10.14202/vetworld.2020.1679-1684)
18. T. N. Thi, **Vu-KhacH.**, T.N. Duc. Characterisation of Clostridium perfringens isolated from chickens in Vietnam.2021. Veterinární medicína. 66,pp. 431–439 DOI:[10.17221/209/2020-VETMED](http://dx.doi.org/10.17221/209/2020-VETMED)

**Conferences**

1. Prevalence and genetic profiles of Shiga toxin-producing *Escherichia coli* strains in buffaloes, cattle, and goats in central region of Viet Nam (2006, VTEC 2006 Melbourne)
2. Preparation and evaluation of the inactivated multi-strain PRRS vaccine made with viruses isolated from Vietnam (2012, IPVS 2012 Korea)
3. Using PCR for determination of virulence factor, antibiotic resistance, and capsule serotype genes of Pasteurella multocida strains isolated from Vietnam (2017, ISSAAS 2017 Hanoi)

**Teaching**

Teaches at all levels (undergraduate, postgraduate) for Veterinary and Biotechnology students at Nha Trang University, and Thai Nguyen University of Agriculture and Forestry, National Institute of Veterinary Research.

* “Techniques in Molecular diagnostics and Analysis” and “Molecular Animal Pathology”: Master students at Nha Trang university from 2014 to 2019 and PhD student at National Institute of Veterinary Research from 2017 to 2019
* “Infectious diseases in Veterinary”: Undergraduate students at Thai Nguyen university of Agriculture and Forestry 2020- 2022
* “Vaccine production technology” for PhD students at National Institute of Veterinary Research 2017-2019 and undergraduate students at Thai Nguyen University of Agriculture and Forestry 2020-2021
* “Parasites and Parasitic Diseases”: undergraduate students at Thai Nguyen University of Agriculture and Forestry

**Supervision**

* 3 PhD
* 7 Master
* Multiple undergraduate students

**Awards and Grants**

* Vietnam Fund for Supporting Technological Creation 16(VIFOTEC-16) Silver award (2021)
* Vietnam Fund for Supporting Technological Creation 15(VIFOTEC-15) Bronze award (2019)