

## Curriculum Vitae (CV)

**Name:** Dr Tuempong Wongtawan

**Position:** Associate Professor

**Date of Birth:** 21 Feb 1976

**Gender:** Male. **Nationality:** Thai. **Status:** Married

**Present home address:** Walailniwas 1, Huatapan, Tha Sala, Nakhon Si Thammarat, Thailand.

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<https://orcid.org/0000-0001-6948-414>

### Education and Qualifications:

2006-2009 PhD (Biomedical Science), College of Medicine and Veterinary Medicine, the University of Edinburgh, the UK.

Advisor, Prof Sir Ian Wilmut. Thesis title “Epigenetic and chromatin reprogramming in mouse development and embryonic stem cell”

2003-2004 Master of Veterinary Medicine (MVM) with specialization in Reproduction. Faculty of Veterinary Medicine and Animal Science, Swedish University of Agricultural Sciences, Sweden.

Advisor: Prof Heriberto Rodriguez Martinez. Thesis title “Fertility after deep intra-uterine AI of concentrated low-volume boar semen doses”.

2000-2002 Master of Science (MSc) in Anatomy, Department of Anatomy, Faculty of Science, Mahidol University, Thailand.

Advisor: Prof Yindee Kitiyanant. Thesis title “In vitro oocyte maturation with or without granulosa cells co-culture and development of embryos produced by somatic cells nuclear transfer in domestic cats”.

1993-1999 Doctor of Veterinary Medicine (DVM). Faculty of Veterinary Science, Chulalongkorn University. Thailand.

### Work experience:

2023-current Research director, Akkhraratchakumari International Veterinary College, Walailak University, Thailand

- 2021-current Senior Fellow of the Higher Education Academy (SFHEA) under UK Professional Standards Framework (UKPSF), at Walailak University
- 2019-current Associate Professor in Biomedical Science, Research director, Akkhraratchakumari International Veterinary College, Walailak University, Thailand
- 2019-2022 Committee of Veterinary Education, Walailak University, Thailand
- 2019-2021 Head of Marine Research and Rescue Centre, Walailak University
- 2011-2019 Assistant Professor in Biomedical Science (Anatomy and Physiology), Faculty of Veterinary Science, Mahidol University, Thailand.
- 2017-2019 Lecturer in Animal Biology, Division of Science, Mahidol University International College, Thailand.
- 2016-2017 Newton Researcher Fellow at Centre for Cardiovascular Sciences, the University of Edinburgh, UK.
- 2015-2016 Visiting Researcher at Faculty of Life Science, Kyoto-Sangyo University, Japan
- 2015-2019 Scientific advisor to private sectors (AMCOVET, DKSH, C.P.F., HuvePharma, and SC16 Ltd).
- 2010-2019 Head of Laboratory of Veterinary Biomedicine, Faculty of Veterinary Science, Mahidol University, Thailand.
- 2010-2019 Head of Veterinary Museum, Faculty of Veterinary Science, Mahidol University, Thailand
- 2003-2011 Lecturer, Faculty of Veterinary Science, Mahidol University, Thailand.
- 2010-2012. Postdoctoral Researcher, Centre for Regenerative Medicine and Centre for Cardiovascular Science, the University of Edinburgh, UK.
- 1999-2005 Part-time Veterinary Practitioner, Thonglor Pets Hospital, Thailand

#### **Teaching Certificate/course**

- 2020 Professional Certificate in Learning and Teaching in Higher Education (PCLTHE) from Advance HE, the UK.
- 2020 Certificate in teaching in one health subject from THOHUN
- 2017 Certificate in Teaching in Higher Education from Mahidol University, Thailand
- 2017 Certificate in Education Research from Mahidol University, Thailand.
- 2013 Certificate in Education Research, Mahidol University.
- 2011 Certificate for Teaching in Higher Education, Mahidol University

#### **Professional Certificates:**

- 2012 Certificate in small animal knee surgery from Mahidol University
- 2006 Certificated for ScotPil and holder of Personal Licence for Scientific Procedures on Living Animals, UK. Home Office.
- 2005 Certificate in Reproductive Biotechnology, joint course by the Smithsonian Institute (USA) and Kasetsart University (Thailand).
- 2004 Certificate in Veterinary Acupuncture, joint course by Chiangmai University (Thailand) and Florida University (USA).
- 2003 Certificate in Elephant Reproduction, joint course by the Institute for Zoology (Germany) and Mahidol University (Thailand).
- 2002 Certificate in Reproductive Endocrinology, joint course by the Smithsonian Institute (USA) and Chiang Mai University (Thailand).
- 2002 Certificate in Laboratory Animal Science, National Laboratory Animal Centre, Thailand

#### **Supervisor for undergraduate student's research project**

1. Horse behaviour toward massage brush para rubber sheet for enhancing animal welfare in horses (2019 - current). International College of Mahidol University.
2. Do dogs like hugging, kissing, head patting or belly rubbing by humans? (2018 - current). International College of Mahidol University.
3. Identification of serum protein marker for equine gastric ulcer syndrome (2016 - 2018). Faculty of Veterinary Science, Mahidol University.
4. Culture of equine mesenchymal stem cells (2014-2016). Faculty of Veterinary Science, Mahidol University.

#### **Supervisor for postgraduate student and research project**

1. Miss Worakan Boonhooh PhD candidate (Health Science), 2021-2023. Walailak University. Project: The development of the Para rubber-based interactive toy as a tool to manage behaviour-related problems in dogs.
2. Mr Doan Hoang Phu PhD candidate (Health Science), 2021-current. Walailak University. Project: The relationship of antimicrobial resistance between pet animals, human and the environment of Thailand.
3. Mr Jakaphan Wannawong. PhD candidate (Veterinary Science), 2017- 2020. Faculty of Veterinary Science, Mahidol University. Project title: Disease mechanism and vaccine development for canine atopic dermatitis.

4. Mr Nuttawut Nuchprayoon . PhD graduate (Veterinary Science), 2016 -2020 – current. Faculty of Veterinary Science, Mahidol University. Project title: Animal welfare of horses used for equine-assisted therapy.
5. Miss Wasamom Korchunjit, MSc graduate (Medical Technology), 2014-2018. Faculty of Medical Technology, Mahidol University. Project title: The role of WNT signalling for differentiation of equine mesenchymal stem cells to tenocytes.
6. Miss Petchroi Petchrueng, MSc graduate (Developmental Biology), 2015-2018. College of Medicine and Veterinary Medicine, the University of Edinburgh. Project title: Molecular mechanism control epigenetic reprogramming in early development.
7. Miss Naruphorn Dararattana, MSc graduate (Biomedical Engineering), 2014-2016. Faculty of Engineering, Mahidol University. Project title: microfluidic dielectrophoretic chip for x and y chromosome spermatozoa separation.
8. Miss Parichart Tesana, MSc graduate (Animal Physiology), 2014-2017. Faculty of Veterinary Science. Chulalongkorn University. Project title: Proteomic study to identify the biological marker for equine gastric syndrome.
9. Miss Cristina Aguirela, MSc graduate (Cardiovascular Science), 2010-2012. College of Medicine and Veterinary Medicine, the University of Edinburgh. Title: Epigenetic reprogramming to cardiovascular cells.

### **Research discipline**

Education, Environmental Pathology, Animal Reproduction, Animal Biotechnology, Anatomy and Physiology, Disease marker, Applied Behaviour, Animal Welfare, Animal Conservation

### **Research Skill**

Animal Behaviour: behaviour analysis, experimental behaviour

Pathology: Gross and microscopic pathology, Environmental pathology, Molecular pathology, Fourier-transform infrared spectroscopy

Microscopy: Laser confocal fluorescence microscopy, Flow cytometry, immunohistochemistry, immunofluorescence, image analysis.

Molecular Biology: RT-PCR, QPCR, Melting curve analysis, DNA/RNA extraction, Gene expression analysis, DNA methylation analysis, DNA cloning, gel electrophoresis, chromatin immunoassay, plasmid production and purification, chromatin assembly, protein extraction and western blot analysis, siRNA and cell transfection, genetic engineering, proteomic analysis, Lab-on-a-chip, DNA sequencing

Microbiology and immunology: ELISA, bacteria culture, antimicrobial sensitivity, plasmid production, and virus production.

Cell Culture: Embryonic stem cells (ESC), fibroblasts, epithelial cells, induced pluripotent stem cells (iPS), trophectodermal stem cells, mesenchymal stem cell (MSC), cumulus cell, granulosa cell, cardiomyocyte, myofibroblast, cell/embryo/sperm cryopreservation.

Animal Handling and Surgery: I have worked with mice, pigs, dogs, cats, cattle, fish, amphibians, reptiles, turtle avian and exotic animals such as elephants, bears and tigers

Embryo manipulation: working with gametes and embryos in pigs, cattle, cats, mice, rats, and frogs. Genetic manipulation using pronuclei injection, intracytoplasmic injection (inject DNA and RNA), preimplantation embryo culture, and embryo transfer.

## **Research Publications: (\*corresponding author)**

### ***Animal Behaviour and Welfare***

- Boonhoh, W., Saramolee, P., Sriphavatsarakom, P., Amaek, W., Waran, N., & Wongtawan, T. (2024). Preference of dogs towards feeding toys made of natural rubber, and their potential to improve canine behaviour: A study based on owners' observations. *Applied Animal Behaviour Science*, 270, 106142. <https://doi.org/10.1016/J.APPLANIM.2023.106142>
- Boonhoh W, Wongtawan T, Sriphavatsarakom P, Waran N, Boonkaewwan C. 2023 The validation of Thai version of Canine Behavioral Assessment and Research Questionnaire (C-BARQ) and the exploration of dog ownership in Thailand. *Journal of Veterinary Behavior*, 68: 7-14. <https://doi.org/10.1016/j.jveb.2023.08.001>.
- Boonhoh W, Wongtawan T, Sriphavatsarakom P, Waran N, Chiawwit P, Tanthanathipchai N, Suttidate N. 2023 Effect of feeding toy and the presence of a dog owner during the feeding time on dog welfare. *Vet World*, 16(8): 1721–1726. doi: [www.doi.org/10.14202/vetworld.2023.1721-1726](http://www.doi.org/10.14202/vetworld.2023.1721-1726).
- Boonhoh W, Wongtawan T, Sriphavatsarakom P, Waran N, Boonkaewwan C. 2023. Factors associated with pet dog behavior in Thailand. *Vet World*. 16(4): 957–964.
- Boonhoh W, Sontigun N, Fungwithaya P, Wongtawan T. 2023. Hematological analysis of naturally infecting blood parasites in dogs. *Vet World*, 16(4): 681-686
- Sontigun N, Boonhoh W, Fungwithaya P, Wongtawan T\*. 2022. Multiple blood pathogen infections in apparently healthy sheltered dogs in southern Thailand. *Int J Vet Sci Med*. 24;10(1):64-71.
- Kimsakulvech S, Sriphavatsarakom P, Thaikoed S, Oupala W, Punkong C, Prompiram P, Saingkaew S, Hayakijkosol O, Wongtawan T. Impact of natural rubber-

based scratcher as an environmental enrichment on the reproductive performance and welfare of male goats. *J Appl Anim Welfare Science*. In press

***Veterinary and Animal Science***

- Laklaeng S, Phu DH, Songsri J, Wisessombat S, Mala W, Senghoi W, Phothaworn P, Nuinoon M, Wongtawan T, and Klangbud WK (2024) A systematic review and meta-analysis of the global prevalence and relationships among *Burkholderia pseudomallei* sequence types isolated from humans, animals, and the environment, *Veterinary World*, 17(1): 26-36.
- Mitsuwan W, Intongead S, Saengsawang P, Romyasamit C, Narinthorn R, Nissapatorn V, Pereira ML, Paul AK, Wongtawan T, Boripun R. 2023. Occurrence of multidrug resistance associated with extended-spectrum  $\beta$ -lactamase and the biofilm forming ability of *Escherichia coli* in environmental swine husbandry, *Comparative Immunology, Microbiology and Infectious Diseases*, 103: 102093.  
<https://doi.org/10.1016/j.cimid.2023.102093>.
- Boripun R, Saengsawang P, Intongead S, Narinthorn R, Wongtawan T, Nissapatorn V, Pereira ML, Mitsuwan W. 2023. Molecular characterization and nucleotide substitution of antibiotic resistance genes in multidrug-resistant *Escherichia coli* isolated from environmental swine farms. *Emerging Contaminants* 100249,  
<https://doi.org/10.1016/j.emcon.2023.100249>.
- Boonchuay K, Sontigun N, Wongtawan T, Fungwithaya P. 2023. Association of multilocus sequencing types and antimicrobial resistance profiles of methicillin-resistant *Mammaliicoccus sciuri* in animals in Southern Thailand. *Vet World*. 16(2):291-295.
- Omeyer LCM, Duncan EM, Abreo NAS, Acebes JMV, AngSinco-Jimenez LA, Anuar ST, Aragonés LV, Araujo G, Carrasco LR, Chua MAH, Cordova MR, Dewanti LP, Espiritu EQ, Garay JB, Germanov ES, Getliff J, Horcajo-Berna E, Ibrahim YS, Jaafar Z, Janairo JIB, Gyi TK, Kreb D, Lim CL, Lyons Y, Mustika PLK, Neo ML, Ng SZH, Pasaribu B, Pariatamby A, Peter C, Porter L, Purba NP, Santa Cruz ET, Shams S, Thompson KF, Torres DS, Westerlaken R, Wongtawan T, Godley BJ. 2023. Interactions between marine megafauna and plastic pollution in Southeast Asia. *Sci Total Environ*. 20;874:162502.
- Wongtawan T, Narinthorn R, Sontigun N, Sansamur C, Petcharat Y, Fungwithaya P, Saengsawang P, Blackall PJ, Thomrongsuwannakij T. 2022. Characterizing the antimicrobial resistance profile of *Escherichia coli* found in sport animals (fighting

cocks, fighting bulls, and sport horses) and soils from their environment. *Vet World*. 15(11):2673-2680.

- Phu DH, Wongtawan T, Truong DB, Van Cuong N, Carrique-Mas J, homrongsuwannakij T. 2022. A systematic review and meta-analysis of integrated studies on antimicrobial resistance in Vietnam, with a focus on Enterobacteriaceae, from a One Health perspective. *One Health*. 15:100465.
- Witoonpanich B, Jinawath A, Wongtawan T, Tawonsawatruk T. 2022. Association of synovial expression of growth and differentiation factor 5 (GDF5) with radiographic severity of knee osteoarthritis. *Heliyon*. 19;8(11):e11798.
- Kabploy K, Saengsawang P, Romyasamit C, Sangkanu S, Kitpipit W, Thomrongsuwannakij T, Wongtawan T, Daus M, Pereira ML, Mitsuwan W. 2022. Sangyod rice bran extract enhances *Lacticaseibacillus paracasei* growth during the exponential phase and antibacterial activity of *L. paracasei* supernatant against zoonotic and foodborne pathogens. *Vet World*. 15(10):2466-2474.
- Songsri J, Mala W, Wisessombat S, Siritham K, Cheha S, Noisa N, Wongtawan T, Klangbud WK. 2022. First isolation of verocytotoxin-producing *Escherichia coli* O157:H7 from sports animals in Southern Thailand. *Vet World*. 15(9):2275-2284.
- Sontigun N, Boonhoh W, Phetcharat Y, Wongtawan T\*. 2022. First study on molecular detection of hemopathogens in tabanid flies (Diptera: Tabanidae) and cattle in Southern Thailand. *Vet World*. 15(8):2089-2094.
- Chuprom J, Kidsin K, Sangkanu S, Nissapatorn V, Wiart C, de Lourdes Pereira M, Wongtawan T, Daus M, Sotthibandhu DS, Tipmanee V, Paul AK, Scholfield CN, Zulkipli MB, Abdullah NH, Mitsuwan W. 2022. *Knema retusa* is antibacterial and antibiofilm against antibiotic resistant *Staphylococcus aureus* and *S. haemolyticus* isolated in bovine mastitis. *Vet Res Commun*. 19. doi: 10.1007/s11259-022-09999-0.
- Pooljun C, Jariyapong P, Wongtawan T, Hirono I, Wuthisuthimethavee S. 2022. Effect of feeding different types of  $\beta$ -glucans derived from two marine diatoms (*Chaetoceros muelleri* and *Thalassiosira weissflogii*) on growth performance and immunity of banana shrimp (*Penaeus merguensis*). *Fish Shellfish Immunol*. 130:512-519.
- Supokawej A, Korchunjit W, Wongtawan T\*. 2022. The combination of BMP12 and KY02111 enhances tendon differentiation in bone marrow-derived equine mesenchymal stromal cells (BM-eMSCs). *J Equine Sci*. 33(2):19-26.
- Fungwithaya P, Sontigun N, Boonhoh W, Boonchuay K, Wongtawan T\*. 2022. Antimicrobial resistance in *Staphylococcus pseudintermedius* on the environmental

surfaces of a recently constructed veterinary hospital in Southern Thailand. Vet World. 15(4):1087-1096.

- Pattanarangsarn R, Kulnanan P, Mitsuwan W, Wongtawan T\*. 2022. Exploration of double-dart injection technique as a supplemental application for remote drug delivery system for zoo and wild animals. Veterinary World. 5(3):622-626.
- Fungwithaya P, Boonchuay K, Narinthorn R, Sontigun N, Sansamur C, Petcharat Y, Thomrongsuwannakij T, Wongtawan T. 2022. First study on diversity and antimicrobial-resistant profile of staphylococci in sports animals of Southern Thailand. Vet World. 15(3):765-774.
- Kimsakulvech S, Nakthong C, Lanamtiang Y, Wongtawan T. 2022. The Influence of a Tropical Climate with a Long Dry Season on Goat Semen Quality and Seminal Fluid Change in the Kanchanaburi Province, Thailand. Tropical Animal Science Journal. 45(3) 291-298.
- Prampramote J, Boonhoh W, Intongead S, Sakornwimon W, Prachamkhai P, Sansamur C, Hayakijkosol O, Wongtawan T. 2022. Association of ocean macroplastic debris with stranded sea turtles in the Central Gulf of Thailand. Endangered Species Research. 47: 333-343
- Nuchprayoon N, Rittruechai P, Watchararat K, Limroongruengrat W, Wongtawan T, Arya N. 2021. Equine spinal kinematics derived from different riding position during asymmetrical bareback riding. J Equine Science. 32 (3): 81-89.
- Prompiram P, Wiriyarat W, Bhusri B, Paungpin W, Jairak W, Sripiboon S, Wongtawan T\*. 2021. The occurrence of elephant endotheliotropic herpesvirus infection in wild and captive Asian elephants in Thailand: Investigation based on viral DNA and host antibody, Veterinary World, 14(2): 545-550.
- Soonthornsit J. Suksai P, Wongtawan T. 2021. A preliminary study of the effect of Pedicoccus-and Saccharomyces- based probiotic in healthy and parvovirus infected puppies. Thai J Vet Med. 51(Suppl.): 99-101.
- Wongtawan T\*, Dararatana N, Thongkittidilok C, Kornmatitsuk S, Oonkhanond B. 2020. Enrichment of bovine X-sperm using microfluidic dielectrophoretic chip: a proof-of- concept study. Heliyon. 6(11), e05483
- Tachumpa K, Wongtawan T\*, Unique pattern of cardiogenic and fibrotic gene expression in rat cardiac fibroblasts. Veterinary World. 2020. 13(8): 1697-1708.
- Shukla, R, Mjoseng H, Thomson John, Kling S, Sproul D, Dunican D, Ramsahoye B, Wongtawan T, Treindl F, Templin M, Adams I, Pennings S, Meehan R. 2020. Activation of transcription factor circuitry in 2i-induced ground-state pluripotency is



independent of repressive global epigenetic landscapes. *Nucleic Acid Research*, 2020. 48 (14), 7748–7766. <https://doi.org/10.1093/nar/gkaa529>

- Wongtawan T\*, Kornmatitsuk S, Awsakulsuddhi S, Pinyopummin A, Sriphavatsarakom P. 2020. Using a para rubber-based apparatus for scratching as enrichment for dairy cows: preliminary results. *Thai J Vet Med*. 50 (Suppl.):233 -234.
- Tesena P, Yingchutrakul Y, Roytrakul S, Angkanaporn K, Wongtawan T\*. 2019. Searching for serum protein markers of Equine Squamous Gastric Disease (ESGD) using gel electrophoresis and mass spectrometry. *Equine Vet J*. 51(5):881-586. <https://doi.org/10.1111/evj.13068>.
- Tesena P, Yingchutrakul Y, Roytrakul S, Wongtawan T, Angkanaporn K. Serum protein expression in Equine Glandular Gastric Disease (EGGD) induced by phenylbutazone. 2019. *J Vet Med Sci*. 20; 81(3):418-424. doi: 10.1292/jvms.18-0679.
- Korchunjit W, Laikul A, Taylor J, Watcharat K, Rittruechai P, Supokawej A, Wongtawan T\*. 2019. Characterization and allogeneic transplantation of equine bone marrow-derived multipotent mesenchymal stromal cells collected from cadavers. *J Equine Vet Sci*. 73, 15-23.
- Poltep K, Tesena P, Yingchutrakul Y, Taylor J, Wongtawan T\*. 2018. Optimization of serum albumin removal protocol for use in a proteomic study to identify the protein biomarkers for silent gastric ulceration in horses. *J Equine Sci*. 29 (3), 53-60.
- Rittruechai P, Laikul A, Korchunjit W, Watcharat K, Jandee P, Nuchprayoon N, Supokawej A, Wongtawan T\*. 2018 Allogeneic Bone Marrow Derived Mesenchymal Stem Cell for Treating Equine Tendon and Joint Injuries in Thailand: A Progress Report of Pilot Studies. *Thai J Vet Med Suppl*. 46: 301-302.
- Wongtawan T\*, Poltep K, Sariya L, Kaeoket K. 2018. Preliminary development of sperm sex-sorting buffer for porcine artificial insemination. *J Appl Anim Sci (Suppl)*. 11, 82-83.
- Wongtawan T\*. 2018. The role of IGF-I in pig growth and reproduction. *J Appl Anim Sci*. 11:37-46.
- Wongtawan T\*, Dararatana, N, Oonkhanond B, Kornmatissuk S. 2018. Zeta potential of bovine X and Y sperm and its application for sperm sorting. *Thai J Vet Med*, 2018. 48 (Suppl): O25-O26.
- Korchunjit W, Kaeoket K, Kitiyanant Y, Taylor J, Wongtawan T\*. 2017. Defined combinations of cryomedia and thawing extender influence the viable X-Y boar sperm ratio in vitro. *CryoLetter*. 38 (3): 160-165.

- Tesena P, Korchunjit W, Taylor J, Wongtawan T\*. 2017. Comparison of commercial RNA extraction kits and Real-time PCR master mixes to study gene expression from small biopsies tissue of equine gastric epithelium. J Equine Sci. 28 (4):135-141.
- Watchrarat K, Korchunjit W, Buranasinsup S, Taylor J, Rittruechai P, Wongtawan T\*. 2017. MEM  $\alpha$  Promotes Cell Proliferation and Expression of Bone Marrow Derived Equine Mesenchymal Stem Cell Gene Markers but Depresses Differentiation Gene Markers. J Equine Vet Sci. 50: 8-14.
- Wongtawan O, Korchunjit W, Tachampa K, Wongtawan T\*. 2016. Comparative Expression of Cardiogenic and Fibrotic Genes in Cardiomyocyte, Cardiac Fibroblast, Muscle Fibroblast and Dermal Fibroblast in Rats. Thai J Vet Med Suppl. 46: 35-37.
- Poltep K, Tantawet S, Chanapiwat P, Korchunjit J, Kaeoket K, Wongtawan T\*. 2016. Effect of Feeding a Fermented Potato Extract Protein on Piglet Growth and Immunity. Thai J Vet Med Suppl. 46: 215-217.
- Dararatana N, Oonkhanond B, Kornmatitsuk S, Wongtawan T\*. 2016. Development of sperm sex sorting using microfluidic dielectrophoretic chip. J Appl Anim Sci Suppl. 9: 23-25.
- Korchunjit W, Poltep K, Yinarnmingmongkol C, Kaeoket K, Kitiyanant Y, Wongtawan T\*. 2016. Sorting Boar X and Y Sperm Using DDX3Y Antiserum. Thai J Vet Med Suppl. 46: 211-213.
- Dararatana N, Tuantranont A, Wongtawan T, Oonkhanond B. 2015. The dielectrophoresis microfluidic chip for cell separation: Case study of separation of floating cell and moving cells. Proceeding of Biomedical Engineering International Conference (8th BMEiCON), 1-5. DOI: 10.1109/BMEiCON.2015.7399511.
- Wongtawan T\*, Aguilar-Sanchez C, Wongtawan B, Pennings S. 2015. Epigenetic reprogramming in mammalian cell differentiation, transdifferentiation and dedifferentiation. CAB Reviews Perspectives in Agriculture Veterinary Science Nutrition and Natural Resources. 10(12):1-15.
- Korchujit K, Kaeoket K, Kitiyanant Y, Wongtawan T\*. 2014. Rapid single cell typing using SYBR® green real-time PCR together with melt curve analysis for sex identification of porcine sperm. Thai J Vet Med. 44 (1). 41-48.
- Wongtawan T\*. 2012. The importance of epigenetics in embryonic development and reproductive biotechnology. J Appl Anim Sci. 5(2). 9-26.
- Wongtawan T\*, Tamarak P. Intrauterine insemination in domestic pig. Thai J Vet Med

- Wongtawan T\*, Taylor JE, Lawson KA, Wilmut I, Pennings S. 2011. Histone H4K20me3 and HP1 $\alpha$  are late heterochromatin markers in development, but present in undifferentiated embryonic stem cells. J Cell Sci. 124:1878-90.
- Wilmut I, Wongtawan T, Quigley M, Sullivan S. 2011. Biomedical and social contributions to sustainability. Philos Trans A Math Phys Eng Sci. May 13; 369(1942):1730-47.
- Buranaamnuay K, Wongtawan T, Masuwatana S, Tummaruk P, Techakumphu M, Intra-uterine and Deep intra-uterine Insemination using Cryopreserved Boar Semen in Spontaneously ovulating Sows. Thai J. Vet. Med. 2010 40(2): 215-219.
- Kaeoket K, Chanapiwat P, Wongtawan T, Kunavongkrit A. 2010. Successful Intrauterine Insemination (IUI) with Frozen Boar Semen: Effect of Dose, Volume and Fixed-Time AI on Fertility. Thai J Agri Sci. 43(1): 31-37.
- Wongtawan T\*, Taylor J, Wilmut I, Pennings S. 2009. Heterochromatin reprogramming in mouse development. Reproduction Fertility and Development. Volume 21 Number 1, P149.
- Wongtawan T, Saravia F, Wallgren M, Caballero I, Rodriguez-Martinez H. 2006. Fertility after deep intrauterine artificial insemination of concentrated low-volume boar semen dose. Theriogenology. ;65(4):773-87.
- Kittiyant Y, Wongtawan T, Saikhun J, Pavasuthipaisit K. Nuclear transfer of adult cat somatic cells into IGF-I treated oocytes and their subsequent development. Theriogenology. 2002, 57, P 423.
- Thongphakdee A, Numchaisrika P; Chatdarong K; Wongtawan T, Rungarunlert S, Rattanakorn P; Kamolnorranath S, Dumnui S; Techakumphu M. Cloned flat-headed cat (Prionailurus planiceps) embryos produced by interspecies somatic cell nuclear transfer. Thai Journal of Veterinary Medicine 2006 Vol.36 No.1 pp.62

### ***Educational research***

- Wongtawan T\*, Kimsakulvech, S, Assawasuparerk K, Sriphavatsarakom P. 2020. Mobile learning in veterinary anatomy and histology classes: preliminary results. Thai J Vet Med 2020. 50 (Suppl.): 359-360.
- Chawangwongsanukun R, Darawiroj D, Wongtawan T\*. New branching patterns of the subclavian arteries found in Thai native dogs. J Appl Anim Sci. 2019. 12(3):41-45.

- Chawangwongsanukun R, Meemon K, Darawiroj D, Wongtawan T\*. 2019. Variations in the branching pattern of the canine coeliac trunk in Thailand: an anatomical study. The Thai J Vet Med. 49 (4): 327-333.
- Nokkaew A, Wongtawan T\*. 2017. Classroom action research: The opinions of veterinary students toward a test after laboratory class of body structure and function course. Journal of Applied Animal Science. 10(3): 31-38.
- Wongtawan T\*, Chawangwongsanukun1 R, Arya N, Nokkaew A. 2016. Classroom action research: Using pre-test online to motivate veterinary students. Proceeding of International Conference for Veterinary Science. Impact, Maungtong Thani, Thailand. 23-25 Nov. Page 82.

## **Patents**

- Sperm sex sorting using microfluidic dielectrophoretic chip. 2016. Thailand Patent. [http://patentsearch.ipthailand.go.th/DIP2013/view\\_public\\_data.php?appno=11708000093](http://patentsearch.ipthailand.go.th/DIP2013/view_public_data.php?appno=11708000093)

## **Past research projects**

### **Animal Behavior**

- Animal behavior problem in Thailand, funded by WU
- The study of human behaviours that dog hate, funded by MUIC
- Welfare of horses used for treatment autistic children, funded by MU.
- Effect of massage brush rubber sheet on animal behaviour and welfare, funded by SC16 Co. Ltd and MUIC.
- Captive and wild elephant behaviour studied by social video records, funded by VETMU.
- Human-Wildlife conflict in Thailand, funded by VETMU.
- Developing interactive dog toy by natural rubber, funded by RAT.

### **Microbiology**

- Antimicrobial resistance (AMR) in sport animals funded by RC.
- Effect of selected probiotic on canine microbiome and parvovirus infection, funded by DKSH, RC, VETMU and BIOTEC.
- Diversity of biting flies and blood parasite in Nakhon Si Thammarat, funded by WU.

- AMR in animal hospitals, funded by WU.
- Effect of microplastics on the hatching of blue crab, funded by WU.
- Relation of antimicrobial resistance among human, animal and environment, funded by RC and WU

### **Marine Animals**

- The relation of climate change and water pollution with stranded turtle, funded by VETWU
- Effect of macroplastic on stranded sea turtles in Thailand, funded by WU.

### **Biomedical Science**

- Understanding elephant endotheliotropic herpesvirus (EEHV) through seroproteomic analysis, funded by VETMU and BIOTEC.
- Proteomic study to identify the toxin from jellyfishes and poison fishes, funded by VETMU, ARDA and BIOTEC.
- Identification of infectious agents carried by flies using proteomic technology, funded by VETMU and BIOTEC.
- Production of wildlife cell lines for wildlife conservation funded by VETMU and NC.
- Anatomic variation of Thai native dogs, funded by VETMU.
- Novel mechanism, disease marker, and vaccine development of canine atopic dermatitis, funded by MEDMU, BIOTEC and VETMU.
- Physiology and Proteomic study of secretion goat seminal fluid, funded by VETMU and BIOTEC.
- Microfluidic dielectrophoretic chip for separation bovine X and Y sperm, funded by CPF, ARDA and NTU.
- Effect of potato extract on piglet immunity and growth, funded by HuvePharma
- Intrauterine artificial insemination in pig, funded by STINT and TRF
- Nuclear transfer in domestic cat, funded by MU.
- Epigenetic change in early development, funded by MU and BBSRC.
- Manipulation of cardiac fibroblast to tackle heart disease: study in mouse and rat, funded by MU, BHF, BBSRC and Newton fund.
- Equine mesenchymal stem cell for treatment of musculoskeletal diseases, funded by MEDTECH, VETMU and the Mall group.

- Biomarker for equine gastric ulcer syndrome, funded by VETCU, VETMU and BIOTEC.
- Alternative technique for porcine sperm sex sorting (using antibody and special buffer), funded by TRF, CPF and AMCOVET.

## **Source of Research Grants**

### *Thailand government research agencies*

- Thailand Research Fund (TRF)
- Mahidol University Research grant (MU.)
- Agricultural Research Development Agency (ARDA)
- Faculty of Veterinary Science, Mahidol University Research grant (VETMU)
- Faculty of Veterinary Science, Chulalongkorn University Research grant (VETCU)
- National Centre for Genetic Engineering and Biotechnology (BIOTEC)
- Thailand Research council (RC.)
- Faculty of Medical Science, Mahidol University (MEDMU)
- Faculty of Medical Technology, Mahidol University (MEDTECH)
- Mahidol University International College (MUIC).
- Health system research institute (HSRI)
- Rubber Authority of Thailand (RAT.)

### *Private sectors*

- Charoen Pokphand Foods PCL (CPF) – Food Company.
- HuvePharma Ltd. – Pharmaceutical Company.
- The Mall Group. – Department store.
- AMCOVET Ltd. – Pig genetics.
- DKSH - Pharmaceutical Company.
- SC16 Co. Ltd. – Research and development company.

### *International organizations*

- Newton Fund, UK
- Biotechnology and Biological Sciences Research Council (BBSRC), UK
- British Heart Foundation (BHF), UK.
- Nanyang Technological University, Singapore (NTU)
- Swedish Foundation for international cooperation in research and higher education (STINT).
- Norwegian Research Council (NC.)

### Oral/Invited presentations (\*Speaker)

- Sriphavatsarakom P, Wongtawan T\*. 2019. Behavioural significance of ear flapping in Asian elephants: A preliminary study. Proceedings of KUVIC, Huahin, Thailand. O23.
- Prompiram P, Wiriyarat W, Yingchutrakul Y, Roytrakul S, Wongtawan T\*. 2019. Understanding elephant endotheliotropic herpesvirus through seroproteomic analysis; preliminary results. Proceedings of KUVIC, Huahin, Thailand. P47.
- Wongtawan T\*. Wild elephant-human conflicts in Thailand: The analysis from the media (2014-2018). 2019. Proceedings of KUVIC, Huahin, Thailand. O25.
- Wongtawan T\*, Dararatana, N, Oonkhanond B, Kornmatissuk S. *17th Chulalongkorn University Veterinary Conference*, 2018. Thailand. Title: Zeta potential of bovine X and Y sperm and its application for sperm sorting.
- Wongtawan T\*, Rittruechai P, Laikul A, Korchunjit W, Watchrarat K, Jandee P, Nuchprayoon N, Supokawej A. *International Conference for Veterinary Science*. 2016, Thailand. Title: The pilot study of using surgery combined with allogeneic mesenchymal stem cell transplantation for treatment of osteochondral fragment induced osteoarthritis in racing horses.
- Wongtawan T\*. *Annual meeting of Asia Pacific Orthopaedic Association and Royal College of Orthopaedic Surgeons of Thailand (RCOST)* 2014, Thailand. Title: Application of mesenchymal stem cells in equine orthopaedic diseases.
- Wongtawan T\*. *First Thai Stem Cell Forum. National Centre for Genetic Engineering and Biotechnology*. 13 Nov 2012. Title: Directing cell fate for regenerative medicine.
- Pennings S\*, Wongtawan T. *U.K./Thai Stem Cell conference* at Centre for Stem cell biology, the University of Sheffield. Epigenetic reprogramming in mouse development and ES cells.
- Wongtawan T\*. 10th February 2010. Special seminar at Thalassemia Research Center, Institute of Molecular Bioscience, Mahidol University. Thailand. Title Epigenetic and cell reprogramming: Basic and application.
- Wongtawan T\*, Taylor J, Wilmut I, Pennings S. *International Society for Stem Cell Research (ISSCR) 7<sup>th</sup> Annual Meeting*, July 8-11, 2009 at Centre Conventions International, Barcelona, Spain. Title: Global chromatin and epigenetic profiles reveal differences between mouse embryonic stem cells, inner cell mass and epiblast.
- Wongtawan T\*, Taylor J, Pennings S, Wilmut I. *2<sup>nd</sup> Centre for Regenerative Medicine (CRM) Annual meeting* 23-24 June 2008 at the Institute of Stem Cell Research, The

University of Edinburgh, UK. Title: Epigenetic and Chromatin Reprogramming in Mouse Early Development.

- Wongtawan T\*, Taylor J, Pennings S, Wilmut I. *2<sup>nd</sup> UK Stem Cell Meeting: Epigenetics & Differentiation*, 27th March 2007, Imperial College London, UK. Title: Dynamics of histone methylations in mouse early development.
- Wongtawan T\*, Taylor J, Pennings S, Wilmut I. *1<sup>st</sup> Centre for Regenerative Medicine Annual meeting* 5<sup>th</sup> June 2007, at The Queen Medical Research Institute (QMRI), The University of Edinburgh, UK. Title: Heterochromatin maturation from zygote to ES cells.
- Thongphagdee\*, A., Numchaisrika, P., Chatdarong, K., Wongtawan, T., Rungarunlert, P., Rattanakorn, P., Kamolnorranath, S., Dumnui, S. and Techakumphu, M. 2005. Proc. The 1st Scientific Meeting of the Asian Zoo & Wildlife Medicine 2005. College of Veterinary Medicine, Kasetsart University. Title: Cloned flat-headed cat (*Prionailurus planiceps*) embryos produced from interspecies somatic cell nuclear transfer.

#### **Poster presentations:**

1. Soonthornsit J. Suksai P, Wongtawan T. A preliminary study of the effect of Pediococcus-and Saccharomyces- based probiotic in healthy and parvovirus infected puppies. CUVC 2021. Bangkok Thailand.
2. Wongtawan T\*, Kornmatitsuk S, Awsakulsuddhi S, Pinyopummin A, Sriphavatsarakom P. 2020. Using a para rubber-based apparatus for scratching as enrichment for dairy cows: preliminary results. CUVC 2020. Bangkok Thailand.
3. Tesena P, Yingchutrakul Y, Wongtawan T, Angkanaporn K. 2016. Electrophoresis separation of serum protein in Thoroughbred horse with gastric ulcer syndrome. The Proceeding of VPAT Regional Veterinary Congress. Page 316-318.
4. Rittruechai P, Laikul A, Korchunjit W, Watchrarat K, Jandee P, Nuchprayoon N, Wongtawan T\*. 2016. The pilot study of using surgery combined with allogeneic mesenchymal stem cell transplantation for treatment of osteochondral fragment induced osteoarthritis in racing horses. Proceeding of International Conference for Veterinary Science. P 8.
5. Korchunjit W, Yinarnmingmongkol C, Kaeoket K, Wongtawan T\*. 2016. Effect of serum on separation X and Y boar spermatozoa. Proceeding of International Conference for Veterinary Science. P 54.
6. Wongtawan T\*, Chawangwongsanukunl R, Arya N, Nokkaew A. 2016. Classroom action research: Using pre-test online to motivate veterinary students. Proceeding of



International Conference for Veterinary Science. Impact, Maungtong Thani, Thailand.  
23-25 Nov. Page 82.

7. Wongtawan T, Taylor J, Wilmut I, Pennings S. Heterochromatin reprogramming in mouse development. 36<sup>th</sup> International Embryo Transfer Society (IETS) Meeting 2009. January 3-6, San Diego, California, USA.
8. Wongtawan T, Taylor J, Wilmut I, Pennings S. Chromatin modification in ICM differs from ES cells. 2008 UK. National Stem Cell Network (UKNSCN) INAUGURAL SCIENTIFIC CONFERENCE. 9-11 April 2008, at Edinburgh Conference Centre. Heriot-Watt University, Edinburgh, UK.
9. Wongtawan T, Wongtawan B, Taylor J, Pennings S, Wilmut I. Chromatin organization in mouse development. UK Chromatin meeting 2007. University of Nottingham, UK, 12-13 April.
10. Wongtawan T, Pennings S, Wongtawan B, Taylor J, Wilmut I. Trimethylation of Histone 4 lysine 20 is the epigenetic code for cell differentiation. European Molecular Biology Organisation (EMBO) conference on epigenetic and chromatin. EMBL Heidelberg, Germany, May 3 - 6, 2007.
11. Saravia F, Wongtawan T, Johannisson A, Wallgren M, Rodríguez-Martínez H. In vitro viability and fertility after deep intra-uterine artificial insemination of concentrated boar semen, Frozen-Thawed In Mini-Flatpacks. 7<sup>th</sup> international conference on pig reproduction. 12-15 June 2005. Rolduc, The Netherlands.
12. Thongphakdee, A., Numchaisrika, P., Chatdarong, K., Wongtawan, T., Rungarunlert, S., Rattanakorn, P., Kamolnorranath, S., Dumnui, S. and Techakumphu, M. 2006. Cloned flat-headed cat (*Prionailurus planiceps*) embryos produced by interspecies somatic cell nuclear transfer. The 2nd Symposium on Animal Reproduction; Trend of Biotechnology for Animal Reproduction: From basic to advance, Fac. of Veterinary Science, Chulalongkorn Univ., Bangkok, Thailand, 27-28 March 2006, p 19
13. Thongphakdee, A., Numchaisrika, P., Chatdarong, K., Wongtawan, T., Rungarunlert, S., Rattanakorn, P., Kamolnorranath, S., Dumnui, S. and Techakumphu, M. 2006. Cloned flat-headed cat (*Prionailurus planiceps*) embryos produced by interspecies somatic cell nuclear transfer. Proc. Ann. Conv. Vet. Sci. Chula. Meeting, 27-28 April, 2006, p 62.
14. Buranaamnuay, K., Wongtawan, T., Kaeoket, K., Tummarak, P. and Techakumphu, M. 2006. Piglets born after intra-uterine artificial insemination using frozen-thawed boar semen in Thailand. Proc. Ann. Conv. Vet. Sci. Chula. Meeting/ 27-28 April, 2006, p 65.

15. Buranaamnuay, K., Wongtawan, T., Kaeoket, K., Tummarak, P. and Techakumphu, M. 2006. Intra-uterine artificial insemination with frozen-thawed boar semen in sows in Thailand. Proc. In The 19th IPVS, 16-19 July, 2006, Copenhagen, Denmark, P.
16. Buranaamnuay, K., Singlor, J., Wongtawan, T., Tummarak, P. and Techakumphu, M. 2006. Intra-uterine artificial insemination with frozen-thawed semen in sows in Thailand. The 2nd Symposium on Animal Reproduction; Trend of Biotechnology for Animal Reproduction: From basic to advance, Fac. of Veterinary Science, Chulalongkorn Univ., Bangkok, Thailand, 27-28 March 2006, p 4.

#### **Academic Awards:**

- Excellent Research Award at VPAT Regional Veterinary Congress, Thailand (2016)
- Newton Fund award- Research Link, UK (2015)
- Sakura Visiting Fellowship, Japan (2014)
- The Best Research Poster award at the International Embryo Technology Society (IETS) Meeting, USA (2009).
- Scottish Stem Cell Network (SSCN) Travel Award, UK (2009)
- International Society for Stem Cell Research Travel award, Spain (2009).
- Scottish Stem Cell Network Travel Award, UK (2007)
- Thailand OHEC Studentship (2006).
- STINT Studentship Award, Sweden (2003).

#### **Professional membership:**

- Thai Society of Animal Reproduction
- International Embryo Technology Society
- Thailand Veterinary Council
- Thai Veterinary Association
- International Society of Stem Cell Research (ISSCR)
- International Embryo Technology Society (IETS)
- Thai Society for Stem Cell Research
- Scottish Stem cell network
- Thai-UK stem cell network

#### **Journal Reviewer**

- Science Report

- Veterinary Integrated Science
- Livestock Science
- Journal of Equine Veterinary Science
- Journal of Orthopaedic Surgery and Research
- Journal of Applied Animal Science
- Biomedical Microdevices
- Systems Biology in Reproductive Medicine
- Anatomia Histologia Embryologia
- Khon Kaen Agriculture Journal
- Microscopy and Microanalysis research
- Thai Journal of Veterinary Medicine
- Annals of Animal Science
- BMC Molecular and Cell Biology:

### **Public engagement**

- 2019-2021, Head of Veterinary Building and Museum, Walailak University, Thailand
- 2016-2019, Head of Veterinary and Animal Museum, Mahidol University, Thailand
- 2016-2019, Member of Mahidol University's museum network, Thailand
- 2012 –current, Committee of Mahidol Pet Lover Festival, Thailand
- 2010-2012, Staff in Edinburgh Science Festival in section “Healthy Heart”.
- 2010-2018, Magazine writer. Pet Lover Magazine.
- 2017, Leader of Biomedical Theatre Network project. In collaboration with Faculty of Social Sciences and Humanities, Innovative Learning Centre and Medical School.
- Co-founder Thai Stem Cell Network, and editor of Thai Stem Cell Network magazine.
- Co-founder Thailand Epigenetic and Chromatin network.
- Co-founder Thai-UK stem cell network.