

NAME: CHIEN-MING SHIH (師健民)

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EDUCATION:

Sc.D., Harvard University, Boston, U.S.A., 1989-1993

M.Sc., National Defense Medical Center, Taiwan, 1984-1986

B.PH, National Defense Medical Center, Taiwan, 1979-1983

CURRENT POSITION:

- Chair, M.Sc. Program in Tropical Medicine, College of Medicine, Kaohsiung Medical University, 2016.8.1-Present
- Professor, Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, 2014.2.1-Present

POSITIONS HELD:

- Adjunct Professor, Graduate Institute of Pathology and Parasitology, National Defense Medical Center, Taiwan, 2011-Present
- Research Fellow, Research Center for Biotechnology and Medicine Policy, Taipei, Taiwan, 2011-2013
- Chairman and Professor, Department of Parasitology and Tropical Medicine, National Defense Medical Center, Taiwan, 2000–2006.
- Associate Professor through Professor, National Defense Medical Center, 1993–1998.
- Board member of Taiwan Society of Preventive Medicine (Current)
- Board member of Taiwan Biological Safety Association (Current)
- Board member of Harvard Club of the Republic of China (Current)
- Board member of Carlo Urbani Association Taiwan (Current)

HONORS AND AWARDS:

- Outstanding Teaching Award, National Defense Medical Center, Taiwan (1996, 1997)
- Outstanding Medical Research Award, National Defense Medical Center, Taiwan (1998)
- Outstanding Achievement certified by Who's Who in the World (1997, 1998)
- Best Research Award, National Defense Medical Center, Taiwan (2001-2002)
- Best Research Award for SCI Journal, National Defense Medical Center, Taiwan (2003)
- Outstanding Alumnus, National Defense Medical Center, Taiwan (2003)

- Outstanding Alumnus, Taipei Chenggong High School, Taiwan (2004)
- Director Pan's Research Award, National Defense Medical Center, Taiwan (2004)
- Distinctive Achievement Award, School of Public Health, National Defense Medical Center, Taiwan (2007)
- Best Tutor Award, National Defense Medical Center, Taiwan (2007)
- Director Pan's Research Award, National Defense Medical Center, Taiwan (2010)

THESIS:

1. **Shih CM** (1986). Exsheathment of microfilariae of *Brugia pahangi* in the haemolymph of mosquitoes. Master thesis, National Defense Medical Center, Taipei, Taiwan, Republic of China.
2. **Shih CM** (1993). Mode of transmission of the Lyme disease spirochete. Doctoral thesis, Harvard University, Boston, Massachusetts, U. S. A.

RESEARCH INTERESTS AND MAJOR CONTRIBUTIONS:

My current research activities have focused on the etiology, epidemiology, molecular diagnosis, and genetic phylogeny of mosquito- and tick-borne human infections in Taiwan. Our previous studies have recognized the first human case of babesiosis and Lyme disease infection in Taiwan. *Borrelia* spirochetes were isolated from rodents, ticks, and humans, and their genospecies had also been identified in the Taiwan area. A standard laboratory for diagnosing Lyme disease infection and identifying the collected ticks was also established. Our investigations on the seasonal prevalence of spirochetal infection in rodents and vector ticks reveal the genetic diversity of *Borrelia* spirochetes detected in *Ixodes granulatus* tick. In addition, *Borrelia* spirochetes isolated from the human skin also verify the polymorphism of genospecies for Lyme disease infection in Taiwan. Our future studies intend to illustrate: i) the genetic diversity of mosquito- and tick-borne pathogens in relation to the geographical distribution of vectors in Taiwan. ii) the factors affecting the vector competence and the potential for epidemiological application of DNA targets on genetic identity of mosquito- and tick-borne pathogens in Taiwan. iii) the etiological correlation between *Borrelia* infection and cutaneous B-cell lymphoma in Taiwan.

RESEARCH GRANT:

1. Establishment the dengue surveillance and precaution system based on the model of infection trend of vector mosquito populations in Kaohsiung City (KMU-TP104A17 ; 2015/10/1~2016/12/31)
2. Investigation on *Borrelia burgdorferi*-associated cutaneous B-cell lymphoma in Taiwan(2) (KMU-TP104E30 ; 2015/10/1~2016/12/31)
3. Serodiagnostic platform for *Borrelia burgdorferi* infection in Taiwan (KMU-TP104E41 ; 2015/10/1~2016/12/31)
4. Genetic analysis of Lyme disease spirochetes in *Rhipicephalus sanguineus* tick of Kaohsiung City, Taiwan (KMU-Q10501 ; 2016/1/1~2016/12/31).

5. Investigation on *Borrelia burgdorferi*-associated cutaneous B-cell lymphoma in Taiwan (KMU-TP103E17 ; 2014/8/1~2015/7/31)
6. Establishment of serodiagnostic platform for *Borrelia burgdorferi* infection in Taiwan (KMU-TP103E23 ; 2014/8/1~2015/7/31)
7. Investigation on the genetic typing of *Babesia* parasites in *Rhipicephalus sanguineus* tick of Kaohsiung City, Taiwan (KMU-Q10402 ; 2015/10/1~2015/12/31).
8. Molecular epidemiology of tick-borne pathogens in Taiwan (NSC 99-2314-B-760-001-MY2 ; 2010/8/1~2012/7/31)
9. Compilation of biota of hard tick (Acari: Ixodidae) and establishment of digital database of tick specimens collected in Taiwan (NSC 98-2321-B-016-004 ; 2009/10/1~2010/9/31)
10. Phylogeny and population genetics of Lyme disease vector tick (*Ixodes granulatus*) in the Taiwan area (NSC96-2314-B-016-025-MY3; 96/08/01~99/07/31)
11. Study on the roles of chemotaxis genes in relation to migration and pathogenesis of Lyme disease spirochete (*Borrelia burgdorferi* sensu lato)(NSC95-2320-B-016-020, 95/08/01~96/07/31; NSC94-2320-B-016-028, 94/08/01~95/07/31)
12. Molecular characterization of citrate synthase gene of Lyme disease spirochetes *Borrelia burgdorferi* and its application for pathogenic differentiation in Taiwan (NSC93-2314-B-016-074; 93/08/01~94/07/31)

PUBLICATIONS

Refereed papers:

1. Chao LL, Yu WC, and **Shih CM*** (2016). First detection and molecular identification of *Babesia microti* in *Rattus losea* captured from the offshore Kinmen Island of Taiwan. **Ticks and Tick-Borne Diseases, On-line Press**, <http://dx.doi.org/10.1016/j.ttbdis.2016.12.005> (**Corresponding author**) (**SCI in Parasitology**)
2. Chao LL and **Shih CM*** (2016). Molecular analysis of *Rhipicephalus sanguineus* (Acari: Ixodidae), an incriminated vector tick for *Babesia vogeli* in Taiwan. **Experimental and Applied Acarology** 70(4): 469-481. (**Corresponding author**) (**SCI in Entomology**)
3. Chao LL, Liao HT, Ho TY, and **Shih CM*** (2016). First detection and molecular identification of *Babesia gibsoni* from *Rhipicephalus sanguineus* ticks. **Acta Tropica, On-line Press**, <http://dx.doi.org/10.1016/j.actatropica.2016.09.022> (**Corresponding author**) (**SCI in Tropical Medicine**)
4. Chao LL, Yeh ST, Hsieh CK, and **Shih CM*** (2016). First detection and molecular identification of *Babesia vogeli* from *Rhipicephalus sanguineus* (Acari: Ixodidae) in Taiwan. **Experimental and Applied Acarology**, 68(4): 539-551. DOI 10.1007/s10493-015-0010-5. (**Corresponding author**) (**SCI in Entomology**)
5. Ko Chang, Chaur-Doug Chen, **Chien-Ming Shih**, Charles Tzu-Chi Lee,

- Ming-Tsang Wu, Deng-Chyang Wu, Yen-Hsu Chen, Chih-Hsing Hung, Meng-Chieh Wu, Chun-Chi Huang, Chien-Hung Lee, and Chi-Kung Ho (2016). Time-Lagging Interplay Effect and Excess Risk of Meteorological/Mosquito Parameters and Petrochemical Gas Explosion on Dengue Incidence. **Scientific Reports** 6:35028. (IF=5.228, 7/63 in Multidisciplinary Sciences)
6. Wang WY, Yang QR, **Shih CM**, Chao LL, and Zhang YC (2015). Establishment of rat models of rheumatoid arthritis induced by *Borrelia burgdorferi*. **Journal of Shandong University (Health Sciences)** 53(9): 47-52. (In Chinese)
 7. Chao LL, Liu LL, Ho TY, and **Shih CM*** (2014). First detection and molecular identification of *Borrelia burgdorferi* spirochete from *Ixodes ovatus* tick ectoparasitized on stray cat in Taiwan. **PLoS One** 9(10): e110599. doi:10.1371/journal.pone.0110599 (Corresponding author) (SCI in Multidisciplinary Sciences)
 8. Chao LL, Lu CF, and **Shih CM*** (2013). Molecular detection and genetic identification of *Borrelia garinii* and *Borrelia afzelii* from patients presenting with a rare skin manifestation of prurigo pigmentosa in Taiwan. **International Journal of Infectious Diseases** 17(12): e1141-e1147. (Corresponding author) (SCI in Infectious Disease)
 9. Chao LL, Hsieh CK, and **Shih CM*** (2013). First report of *Amblyomma helvolum* (Acari: Ixodidae) from the Taiwan stink snake, *Elaphe carinata* (Reptilia: Colubridae), collected in southern Taiwan. **Ticks and Tick-Borne Diseases** 4:246-250. (Corresponding author) (SCI in Parasitology)
 10. Hu JM, Wang CC, Chao LL, Lee CS, and **Shih CM*** (2013). First report of furuncular myiasis caused by the larva of botfly, *Dermatobia hominis*, in a Taiwanese traveler. **Asian Pacific Journal of Tropical Biomedicine** 3(3):229-231. (Corresponding author)
 11. Chao LL, Liu LL, and **Shih CM*** (2012). Prevalence and molecular identification of *Borrelia* spirochetes in *Ixodes granulatus* ticks collected from *Rattus losea* on Kinmen Island of Taiwan. **Parasites & Vectors** 5:167. (Corresponding author) (SCI in Parasitology)
 12. Chao LL and **Shih CM*** (2012). First report of human biting activity of *Ixodes acutitarsus* (Acari: Ixodidae) collected in Taiwan. **Experimental and Applied Acarology** 56:159-164. (Corresponding author) (SCI in Entomology)
 13. Chao LL, Wu WJ, and **Shih CM*** (2011). Species identification of *Ixodes granulatus* based on the ribosomal DNA spacer, internal transcribed spacer 2 (ITS-2), sequences. **Experimental and Applied Acarology** 54:51-63. (Corresponding author) (SCI in Entomology)
 14. Chao LL, Chen YJ, and **Shih CM*** (2011). First isolation and molecular

- identification of *Borrelia burgdorferi* sensu stricto and *B. afzelii* from skin biopsies of patients in Taiwan. **International Journal of Infectious Diseases** 15:e182-e187. (Corresponding author) (SCI in Infectious Disease)
15. Chao LL, Wu WJ, and Shih CM* (2010). Molecular detection of *Borrelia valaisiana*-related spirochetes from *Ixodes granulatus* ticks in Taiwan. **Experimental and Applied Acarology** 52:393-407. (Corresponding author) (SCI in Entomology)
 16. Chang BL, Shih CM, Ro LS, Huang CC, Lyu RK, Chen RS, Lee JD, Chao LL, Kuo HC (2010). Acute neuroborreliosis with involvement of the central nervous system. **Journal of the Neurological Sciences** 295:10-15. (SCI in Clinical Neurology)
 17. Chao LL, Chen YJ, and Shih CM* (2010). First detection and molecular identification of *Borrelia garinii* isolated from human skin in Taiwan. **Journal of Medical Microbiology** 59(2):254-257. (Corresponding author) (SCI in Microbiology)
 18. Huang GS, Shih CM, Wu CC, Hu MH, Tsai CS, Liaw WJ, Chan SM, and Li CY (2010). Hypertonic saline, mannitol and hydroxyethyl starch preconditioning of platelets obtained from septic patients attenuates CD40 ligand expression *in vitro*. **The Journal of Trauma, Injury, Infection and Critical Care** 68:331-336. (SCI in Emergency Medicine)
 19. Chao LL and Shih CM* (2009). Genetic analysis of the flagellin gene of Lyme disease spirochetes (*Borrelia burgdorferi*) isolated from rodents in Taiwan. **Journal of Medical Sciences** 29(5): 249-255. (Corresponding author)
 20. Dai NT, Yeh MK, Chiang CH, Chen KC, Liu TH, Feng AC, Chao LL, Shih CM, Sytwu HK, Chen TM, and Adams EF (2009). Human single-donor composite skin substitutes based on collagen and polycaprolactone copolymer. **Biochemical and Biophysical Research Communications** 386: 21-25. (SCI in Biophysics)
 21. Chao LL, Wu WJ, and Shih CM* (2009). First detection and molecular identification of *Borrelia burgdorferi*-like spirochetes in *Ixodes granulatus* ticks collected on Kinmen island of Taiwan. **American Journal of Tropical Medicine and Hygiene** 80(3): 389-394.(Corresponding author) (SCI in Tropical Medicine)
 22. Chao LL, Wu WJ, and Shih CM* (2009). Molecular analysis of *Ixodes granulatus*, a possible vector tick for *Borrelia burgdorferi* sensu lato in Taiwan. **Experimental and Applied Acarology** 48:329-344, (Corresponding author) (SCI in Entomology)
 23. Hsieh YF, Liu HW, Hsu TC, Wei JCC, Shih CM, Peter J Krause, and Gregory J Tsay (2007). Serum reactivity against *Borrelia burgdorferi* OspA in patients with

- rheumatoid arthritis. **Clinical and Vaccine Immunology** 14(11):1437-1441. (SCI in Microbiology)
24. Li TH, **Shih CM**, Lin WJ, Lu CW, Chao LL, and Wang CC (2007). Erythema migrans mimicking cervical cellulitis with deep neck infection in a child with Lyme disease. **Journal of the Formosan Medical Association** 106(7):577-581. (SCI in Medicine General)
25. Dai NT, Yeh MK, Liu DD, Adams EF, Chiang CH, Yen CY, **Shih CM**, Sytwu HK, Chen TM, Wang HJ, Williamson MR, and Coombes AGA (2005). A co-cultured skin model based on cell support membranes. **Biochemical Biophysical Research Communications** 329:905-908. (SCI in Biophysics)
26. Tsai CS, Hsu PC, Huang GS, Lin TC, Hong GJ, **Shih CM**, and Li CY (2004). Midazolam attenuates adenosine diphosphate-induced P-selectin expression and platelet-leukocyte aggregation. **European Journal of Anaesthesiology** 21:871-876. (SCI in Anaesthesiology).
27. **Shih CM*** and Chao LL (2004). Current status of Lyme disease in Taiwan with description of its vector ticks and reservoir hosts. **Proceedings of the Symposium on Rodent Damage and Control Strategy**; pp. 79-92, The Plant Protection Society of the Republic of China, Taichung, Taiwan, Republic of China.
28. Chen HC, **Shih CM**, Lai JH, Chao LL, Kuo SY and Chang DM (2004). Pleural effusion as a manifestation of Lyme disease: a case report. **Journal of Rheumatology** 31:811-813. (SCI in Rheumatology).
29. 羅文聰、王志堅、師健民 (2003)。認識萊姆病。感染控制雜誌, 13 卷, 第 113-118 頁。
30. **Shih CM*** (2002). Current status of tick-borne zoonotic Lyme disease in Taiwan. **Symposium on zoonotic infections**; pp.17-27, Bureau of Animal and Plant Health Inspection and Quarantine Council of Agriculture, Executive Yuan, Taichung, Taiwan, Republic of China.
31. Chao LL and **Shih CM*** (2002). Molecular characterization of Lyme disease spirochetes (*Borrelia burgdorferi* sensu lato) isolated in Taiwan by restriction fragment length polymorphism analysis of 5S-23S intergenic spacer amplicons. **American Journal of Tropical Medicine and Hygiene** 67:504-510. (SCI in Tropical Medicine) (NSC90-2320-B-016-068) (Corresponding author).
32. Chung YC, Tsai HY, **Shih CM**, Chao LL and Lin RY (2002). Lyme disease in childhood: report of one case. **Acta Paediatrica Taiwanica** 43:162-165. (國科會優良期刊)
33. Tung LN, Su HY, **Shih CM**, Chao LL and Chen HC (2002). Multiple erythema migrans treated with minocycline accompanied with Jarisch-Herxheimer reaction. **Dermatologica Sinica** 20:152-160. (國科會優良期刊)

34. Tsai HC, Lu CF, **Shih CM**, Chao LL and Hu CH (2002). Lyme disease during pregnancy. *Dermatologica Sinica* 20:147-151. (國科會優良期刊)
35. **Shih CM***, Chao LL and Yu CP (2002). Chemotactic migration of Lyme disease spirochetes (*Borrelia burgdorferi*) to the salivary gland extracts of vector tick. *American Journal of Tropical Medicine and Hygiene* 66:616-621. (Corresponding author) (SCI in Tropical Medicine) (NSC89-2320-B-016-037).
36. **Shih CM*** and Chao LL (2002). An OspA-based genospecies identification of Lyme disease spirochetes (*Borrelia burgdorferi* sensu lato) isolated in Taiwan. *American Journal of Tropical Medicine and Hygiene* 66:611-615. (Corresponding author) (SCI in Tropical Medicine) (NSC89-2314-B-016-082).
37. **Shih CM*** and Chao LL (2002). Genetic analysis of the outer surface protein C gene of Lyme disease spirochetes (*Borrelia burgdorferi* sensu lato) isolated from rodents in Taiwan. *Journal of Medical Microbiology* 51:318-325. (Corresponding author) (SCI in Microbiology).
38. **Shih CM*** and Chao LL (1999). Tick-borne Lyme disease in Taiwan. *Chinese Journal of Entomology* 12:S161-169. (Corresponding author)
39. **Shih CM*** (1998). Tick-borne Lyme disease. *Kaohsiung Journal of Medical Science* 14:S11-S17. (Corresponding author) (SCI in Medicine) (國科會優良期刊)
40. **Shih CM***, Chang HM, Chen SL and Chao LL (1998). Genospecies identification and characterization of Lyme disease spirochetes of genospecies *Borrelia burgdorferi* sensu lato isolated from rodents in Taiwan. *Journal of Clinical Microbiology* 36:3127-3132. (Corresponding author) (SCI in Microbiology)
41. **Shih CM*** and Chao LL (1998). Lyme disease in Taiwan: primary isolation of *Borrelia burgdorferi*-like spirochetes from rodents in the Taiwan area. *American Journal of Tropical Medicine and Hygiene* 59:687-692. (Corresponding author) (SCI in Tropical Medicine)
42. **Shih CM*** and Wang CC (1998). Ability of azithromycin in combination with quinine for the elimination of babesial infection in human. *American Journal of Tropical Medicine and Hygiene* 59:509-512. (Corresponding author) (SCI in Tropical Medicine)
43. **Shih CM*** and Liu LP (1998). Differential efficacy of passive immunization against infection by Lyme disease spirochaetes transmitted by partially fed vector ticks. *Journal of Medical Microbiology* 47:773-779. (Corresponding author) (SCI in Microbiology)
44. **Shih CM***, Wang JC, Chao LL, and Wu TN (1998). Lyme disease in Taiwan: first human patient with characteristic erythema chronicum migrans skin lesion. *Journal of Clinical Microbiology* 36(3):807-808. (Corresponding author) (SCI

in Microbiology)

45. 師健民、趙麗蓮 (1997). 萊姆病。疫情報導，13 卷，第 386-392 頁。
46. **Shih CM***, Liu LP, Chung WC, Ong SJ, and Wang CC (1997). Human babesiosis in Taiwan: asymptomatic infection with *Babesia microti*-like organism in a taiwanese woman. **Journal of Clinical Microbiology** 35(2):450-454. (Corresponding author) (IF=4.232, 23/119 in Microbiology)
47. **Shih CM*** and Liu LP (1996). Accelerated infectivity of tick-transmitted Lyme disease spirochetes to vector ticks. **J. Clin. Microbiol.** 34(9):2297-2299. (Corresponding author) (SCI in Microbiology)
48. **Shih CM***, Liu LP, and Spielman A (1995). Differential spirochetal infectivities to vector ticks of mice chronically infected by the agent of Lyme disease. **J. Clin. Microbiol.** 33(12):3164-3168. (SCI in Microbiology)
49. **Shih CM***, Telford III SR, and Spielman A (1995). Effect of ambient temperature on competence of deer ticks as hosts for Lyme disease spirochetes. **J. Clin. Microbiol.** 33(4):958-961. (SCI in Microbiology)
50. **Shih CM**, Spielman A, and Telford III SR (1995). Mode of action of protective immunity to Lyme disease spirochetes. **American Journal of Tropical Medicine and Hygiene** 52(1):72-74. (SCI in Tropical Medicine)
51. **Shih CM*** (1994). Lyme disease. **Medical Digest** 18(4):349-352.
52. **Shih CM** and Spielman A (1993). Accelerated transmission of Lyme disease spirochetes by partially fed vector ticks. **Journal of Clinical Microbiology** 31:2878-2881. (SCI in Microbiology)
53. **Shih CM** and Spielman A (1993). Topical prophylaxis for Lyme disease after tick bite in a rodent model. **Journal of Infectious Diseases** 168:1042-1045. (SCI in Infectious Diseases)
54. **Shih CM**, Telford III, SR, Pollack RJ, and Spielman A (1993). Rapid dissemination by the agent of Lyme disease in hosts that permit fulminating infection. **Infection and Immunity** 61:2396-2399. (SCI in Infectious Diseases)
55. **Shih CM**, Pollack RJ, Telford III, SR, and Spielman A (1992). Delayed dissemination of Lyme disease spirochetes from the site of deposition in the skin of mice. **Journal of Infectious Diseases** 166:827-831. (SCI in Infectious Diseases)
56. **Shih CM*** and Chen CC (1991). Haemolymph monophenol oxidase activity in *Armigeres subalbatus* infected with *Brugia pahangi*. **International Journal for Parasitology** 21:357-359. (Corresponding author) (SCI in Parasitology)
57. Chen CC and **Shih CM** (1988). Exsheathment of microfilariae of *Brugia pahangi* in the susceptible and refractory strains of *Aedes aegypti*. **Annals of Tropical Medicine and Parasitology** 82:201-206. (SCI in Tropical Medicine)

58. **Shih CM*** and Chen CC (1987). Exsheathment of microfilariae of *Brugia pahangi* in *Anopheles quadrimaculatus* and *Culex quinquefasciatus*. **Southeast Asian Journal of Tropical Medicine and Public Health** 18:521-525. (SCI in Tropical Medicine)
59. Chen YH, Chen CH, **Shih CM**, Chen CC, Chu ML, and Ma CP (1986). Red cell morphology in glomerular hematuria (I) evaluation of urinary red cell morphology for differential diagnosis of hematuria in children. **Acta Paediatrica Sinica** 27(5):433-439. (國科會優良期刊)

Conference paper:

1. **Shih CM** and Chao LL (2016). First detection and molecular identification of *Babesia* infection in *Rhipicephalus sanguineus* ticks ectoparasitized on dogs in Northern Taiwan. International Congress for Tropical Medicine and Malaria 2016, September 18-22, 2016, Brisbane, Australia.
2. **Shih CM** and Chao LL (2015). Lyme disease in Taiwan: a neglected tick-borne spirochetal infection. The 11th Preventive Medicine Conference of Canton, Hongkong, Macau and Taiwan, May 1-2, 2015, Kaohsiung, Taiwan.
3. **Shih CM** and Chao LL (2013). Emerging tick-borne Lyme disease in Taiwan: from discovery to molecular approach and it's impact on National Quarantine Service. The 10th Preventive Medicine Conference of Canton, Hongkong, Macau and Taiwan, May 25-26, 2013, Macau, China.
4. Chao LL, Lu CF, and **Shih CM** (2012). Molecular identification of *Borrelia* spirochetes isolated from skin biopsies of patients characterized with an unusual dermal manifestation (prurigo pigmentosa) in Taiwan. The 22th European Congress of Clinical Microbiology and Infectious Diseases (Abstract 943), p., March 31-April 3, 2012, London, UK.
5. Chao LL and **Shih CM** (2010). Molecular evidence of genetic diversity of *Borrelia burgdorferi* sensu lato detected in *Ixodes granulatus* ticks removed from rodents in Taiwan. 14th International Congress on Infectious Diseases (Abstract 34.009), March 9-12, 2010, Miami, USA.
6. **Shih CM** and Chao LL (2009). Molecular analysis of *Borrelia* spirochetes detected in *Ixodes granulatus* ticks removed from rodents in Taiwan. The 19th European Congress of Clinical Microbiology and Infectious Diseases (Abstract 715), p.88, May 16-19, 2009, Helsinki, Finland.
7. Chao LL and **Shih CM** (2008). Genetic analysis of the flagella gene of Lyme disease spirochetes *Borrelia burgdorferi* isolated from offshore Kinmen Island of

- Taiwan. The 13th International Congress on Infectious Diseases (Abstract 40.065), p.106, June 19-22, 2008, Kuala Lumpur, Malaysia.
8. **Shih CM**, Yu WC, and Chao LL (2008). Molecular diagnosis of *Babesia* infection among rodents collected from the offshore Kinmen island of Taiwan. The 13th International Congress on Infectious Diseases (Abstract 65.039), p.166, June 19-22, 2008, Kuala Lumpur, Malaysia.
 9. **Shih CM**, Chang MT, and Chao LL (2006). Seasonal prevalence of *Ixodes granulatus* (Ixodidae), a supposed tick vector for Lyme disease spirochetes, in the offshore Kinmen Island of Taiwan. The 12th International Congress of Acarology (Abstract Doelenzaal), p.189, August 21-26, 2006, Amsterdam, The Netherlands.
 10. Chao LL, Wu WJ, and **Shih CM** (2006). Phylogenetic analysis of *Ixodes granulatus* (Ixodidae) in Taiwan based on mitochondrial 16S rDNA sequences. The 12th International Congress of Acarology (Abstract F001), p.40, August 21-26, 2006, Amsterdam, The Netherlands.
 11. **Chao LL**, Chen YC, and Shih CM (2005). Seroepidemiology of Lyme disease infection in Taiwan. The 54th Annual Meeting of the American Society of Tropical Medicine and Hygiene (Abstract 652), p.215, December 11-15, 2005, Washington, DC, USA.
 12. **Shih CM**, Chen YC, and Chao LL (2005). Standardization of serodiagnosis for Lyme disease infection in the Taiwan area. The 54th Annual Meeting of the American Society of Tropical Medicine and Hygiene (Abstract 651), p.215, December 11-15, 2005, Washington, DC, USA.
 13. Chao LL and **Shih CM** (2004). Zoonotic transmission of Lyme disease spirochetes (*Borrelia burgdorferi*) in the offshore Kinmen island of Taiwan. The 53th Annual Meeting of the American Society of Tropical Medicine and Hygiene (Abstract 640), p.189, November 7-11, 2004, Miami Beach, Florida, USA.
 14. **Shih CM** and Chao LL (2004). Seroprevalence of scrub typhus infection among military personnel during their service at an endemic site of Taiwan. The 53th Annual Meeting of the American Society of Tropical Medicine and Hygiene (Abstract 639), p.189, November 7-11, 2004, Miami Beach, Florida, USA.
 15. Chao LL and **Shih CM**. (2003). Serosurvey of *Borrelia burgdorferi* infection among military personnel of Taiwan. The 8th Conference of the International Society of Travel Medicine. (Abstract PO07.01),p.170, May.7-11, 2003. New York City, USA.
 16. **Shih CM** and Chao LL (2003).Seroprevalence of Lyme disease infection in Taiwan. The 8th Conference of The International Society of Travel medicine (Abstract PO04.06), p.149, May 7-11, 2003, New York, USA.

17. **Shih CM** and Chao LL (2002). Common vector ticks parasitized on wild and domestic animals in Taiwan. The 10th International Congress of Parasitology (Abstract PA-035), August 4-9, 2002, Vancouver, Canada.
18. **Shih CM** (2002). Current status of Lyme disease infection in Taiwan. Symposium on Emerging and Reemerging Vector-borne Human Infections, pp.39-52, November 23-26, 2002, Taipei, Taiwan.
19. Chen YJ, **Shih CM**, Chao LL, and Chiu HC (2002). Serology and culture of *Borrelia burgdorferi* in patients with borreliosis-related dermatosis. Symposium on Emerging and Reemerging Vector-borne Human Infections, p.66, November 23-26, 2002, Taipei, Taiwan.
20. Wang VC, Chen CC, Chao LL, and **Shih CM** (2002). Lyme neuroborreliosis: a patient characterized by the facial nerve palsy. Symposium on Emerging and Reemerging Vector-borne Human Infections, p.68, November 23-26, 2002, Taipei, Taiwan.
21. Wu CC, Liang CK, Chou SY, Lee SM, Hui WM, **Shih CM**, and Chao LL (2002). Limbic keratoconjunctivitis combining with retinitis as characteristics of intraocular Lyme disease. Symposium on Emerging and Reemerging Vector-borne Human Infections, p.69, November 23-26, 2002, Taipei, Taiwan.
22. Huang YL, Lee MC, Yang LJ, Hong HS, **Shih CM**, and Chao LL (2002). The skin manifestations of Lyme disease in Taiwan: a clinical observation and experience of Chang Gung Memorial Hospital. Symposium on Emerging and Reemerging Vector-borne Human Infections, p.70, November 23-26, 2002, Taipei, Taiwan.
23. Chung YH, Hong HS, **Shih CM**, Chao LL, Huang YL, and Lee MC (2002). Vulvar lichen sclerosus and *Borrelia burgdorferi* infection. Symposium on Emerging and Reemerging Vector-borne Human Infections, p.71, November 23-26, 2002, Taipei, Taiwan.
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