บรรณานุกรม

Akai, P.S., Pungpak, S., Kitikoon, V., Bunnag, D., Befus, A.D., 1994. Possible protective immunity in human opisthorchiasis. Parasite Immunol 16, 279-288.

Bhamarapravati, N., Thammavit, W., Vajrasthira, S., 1978. Liver changes in hamsters infected with a liver fluke of man, Opisthorchis viverrini. Am J Trop Med Hyg 27, 787-794.

Brockmoller, J., Cascorbi, I., Henning, S., Meisel, C., Roots, I., 2000. Molecular genetics of cancer susceptibility. Pharmacology 61, 212-227.

Chemrungroj, G., 2000. Risk factor for cholangiocarcinoma: a case–control study. . Yale University.

Elkins, D.B., Sithithaworn, P., Haswell-Elkins, M., Kaewkes, S., Awacharagan, P., Wongratanacheewin, S., 1991. Opisthorchis viverrini: relationships between egg counts, worms recovered and antibody levels within an endemic community in northeast Thailand. Parasitology 102 Pt 2, 283-288.

Haswell-Elkins, M.R., Sithithaworn, P., Mairiang, E., Elkins, D.B., Wongratanacheewin, S., Kaewkes, S., Mairiang, P., 1991. Immune responsiveness and parasite-specific antibody levels in human hepatobiliary disease associated with Opisthorchis viverrini infection. Clin Exp Immunol 84, 213-218.

Haswell-Elkins, M.R., Mairiang, E., Mairiang, P., Chaiyakum, J., Chamadol, N., Loapaiboon, V., Sithithaworn, P., Elkins, D.B., 1994a. Cross-sectional study of Opisthorchis viverrini infection and cholangiocarcinoma in communities within a high-risk area in northeast Thailand. International journal of cancer 59, 505-509.

Haswell-Elkins, M.R., Satarug, S., Tsuda, M., Mairiang, E., Esumi, H., Sithithaworn, P., Mairiang, P., Saitoh, M., Yongvanit, P., Elkins, D.B., 1994b. Liver fluke infection and cholangiocarcinoma: model of endogenous nitric oxide and extragastric nitrosation in human carcinogenesis. Mutat Res 305, 241-252.

Honjo, S., Srivatanakul, P., Sriplung, H., Kikukawa, H., Hanai, S., Uchida, K., Todoroki, T., Jedpiyawongse, A., Kittiwatanachot, P., Sripa, B., Deerasamee, S., Miwa, M., 2005. Genetic and environmental determinants of risk for cholangiocarcinoma via Opisthorchis viverrini in a densely infested area in Nakhon Phanom, northeast Thailand. International journal of cancer 117, 854-860.

Jeng, J.E., Tsai, J.F., Chuang, L.Y., Ho, M.S., Lin, Z.Y., Hsieh, M.Y., Chen, S.C., Chuang, W.L., Wang, L.Y., Yu, M.L., Dai, C.Y., Chang, J.G., 2007. Tumor necrosis factor-alpha 308.2 polymorphism is associated with advanced hepatic fibrosis and higher risk for hepatocellular carcinoma. Neoplasia 9, 987-992.

Khan, S., Thomas, HC., Davidson, BR., Taylor-Robinson, SD., 2005. Cholangiocarcinoma. Lancet Infect Dis 366, 1303-1304.

Kietthubthew, S., Sriplung, H., Au, W.W., 2001. Genetic and environmental interactions on oral cancer in Southern Thailand. Environ Mol Mutagen 37, 111-116.

Li, H., Chen, X.L., Li, H.Q., 2005. Polymorphism of CYPIA1 and GSTM1 genes associated with susceptibility of gastric cancer in Shandong Province of China. World J Gastroenterol 11, 5757-5762.

Mairiang, E., Elkins, D.B., Mairiang, P., Chaiyakum, J., Chamadol, N., Loapaiboon, V., Posri, S., Sithithaworn, P., Haswell-Elkins, M., 1992. Relationship between intensity of Opisthorchis viverrini infection and hepatobiliary disease detected by ultrasonography. J Gastroenterol Hepatol 7, 17-21.

Mairiang, E., Haswell-Elkins, M.R., Mairiang, P., Sithithaworn, P., Elkins, D.B., 1993. Reversal of biliary tract abnormalities associated with Opisthorchis viverrini infection following praziquantel treatment. Trans R Soc Trop Med Hyg 87, 194-197.

Marahatta, S.B., Punyarit, P., Bhudisawasdi, V., Paupairoj, A., Wongkham, S., Petmitr, S., 2006. Polymorphism of glutathione S-transferase omega gene and risk of cancer. Cancer Lett 236, 276-281.

Ng, E.K., Sung, J.J., Ling, T.K., Ip, S.M., Lau, J.Y., Chan, A.C., Liew, C.T., Chung, S.C., 1998. Helicobacter pylori and the null genotype of glutathione-S-transferase-mu in patients with gastric adenocarcinoma. Cancer 82, 268-273.

Pairokul., C., Sithithaworn, P., Sripa, B. et al., 1991. Risk groups for opisthorchisis-associated cholangiocarcinoma indicated by a study of worm burden-related biliary pathology. Kan Tan Sui 22, 111-120.

Pakakasama, S., Mukda, E., Sasanakul, W., Kadegasem, P., Udomsubpayakul, U., Thithapandha, A., Hongeng, S., 2005. Polymorphisms of drug-metabolizing enzymes and risk of childhood acute lymphoblastic leukemia. Am J Hematol 79, 202-205.

Parkin, D.M., Srivatanakul, P., Khlat, M., Chenvidhya, D., Chotiwan, P., Insiripong, S., L'Abbe, K.A., Wild, C.P., 1991. Liver cancer in Thailand. I. A case-control study of cholangiocarcinoma. Int J Cancer 48, 323-328.

Parkin, D.M., Ohshima, H., Srivatanakul, P., Vatanasapt, V., 1993. Cholangiocarcinoma: epidemiology, mechanisms of carcinogenesis and prevention. Cancer Epidemiol Biomarkers Prev 2, 537-544.

Pinlaor, S., Hiraku, Y., Ma, N., Yongvanit, P., Semba, R., Oikawa, S., Murata, M., Sripa, B., Sithithaworn, P., Kawanishi, S., 2004a. Mechanism of NO-mediated oxidative and nitrative DNA damage in hamsters infected with Opisthorchis viverrini: a model of inflammation-mediated carcinogenesis. Nitric Oxide 11, 175-183.

Pinlaor, S., Ma, N., Hiraku, Y., Yongvanit, P., Semba, R., Oikawa, S., Murata, M., Sripa, B., Sithithaworn, P., Kawanishi, S., 2004b. Repeated infection with Opisthorchis viverrini induces accumulation of 8-nitroguanine and 8-oxo-7,8-dihydro-2'-deoxyguanine in the bile duct of hamsters via inducible nitric oxide synthase. Carcinogenesis 25, 1535-1542.

Pinlaor, S., Sripa, B., Ma, N., Hiraku, Y., Yongvanit, P., Wongkham, S., Pairojkul, C., Bhudhisawasdi, V., Oikawa, S., Murata, M., Semba, R., Kawanishi, S., 2005. Nitrative and oxidative DNA damage in intrahepatic cholangiocarcinoma patients in relation to tumor invasion. World J Gastroenterol 11, 4644-4649.

Plikaytis, B.D., Turner, S.H., Gheesling, L.L., Carlone, G.M., 1991. Comparisons of standard curve-fitting methods to quantitate Neisseria meningitidis group A polysaccharide antibody levels by enzyme-linked immunosorbent assay. J Clin Microbiol 29, 1439-1446.

Rebbeck, T.R., 1997. Molecular epidemiology of the human glutathione S-transferase genotypes GSTM1 and GSTT1 in cancer susceptibility. Cancer Epidemiol Biomarkers Prev 6, 733-743.

Sithithaworn, P., Tesana, S., Pipitgool, V., Kaewkes, S., Thaiklar, K., Pairojkul, C., Sripa, B., Paupairoj, A., Sanpitak, P., Aranyanat, C., 1991. Quantitative post-mortem study of Opisthorchis viverrini in man in north-east Thailand. Trans R Soc Trop Med Hyg 85, 765-768.

Sithithaworn, P., Haswell-Elkins, M., 2003. Epidemiology of Opisthorchis viverrini. Acta Trop 88, 187-194.

Sripa, B., 2003. Pathobiology of opisthorchiasis: an update. Acta Trop 88, 209-220.

Sripa, B., Kaewkes, S., Sithithaworn, P., Mairiang, E., Laha, T., Smout, M., Pairojkul, C., Bhudhisawasdi, V., Tesana, S., Thinkamrop, B., Bethony, J.M., Loukas, A., Brindley, P.J., 2007. Liver fluke induces cholangiocarcinoma. PLoS Med 4, e201.

Sripa, B., Pairojkul, C., 2008. Cholangiocarcinoma: lessons from Thailand. Curr Opin Gastroenterol 24, 349-356.

Sripa, B., Mairiang, E., Thinkhamrop, B., Laha, T., Kaewkes, S., Sithithaworn, P., Tessana, S., Loukas, A., Brindley, P.J., Bethony, J.M., 2009. Advanced periductal fibrosis from infection with the carcinogenic human liver fluke Opisthorchis viverrini correlates with elevated levels of interleukin-6. Hepatology 50, 1273-1281.

Uttaravichien, T., Buddhisawasdi, V., 1990. Experience of non-jaundiced cholangiocarcinoma. Hepatogastroenterology 37, 608-611.

Uttaravichien, T., Bhudhisawasdi, V., Pairojkul, C., Pugkhem, A., 1999. Intrahepatic cholangiocarcinoma in Thailand. J Hepatobiliary Pancreat Surg 6, 128-135.

Vatanasapt, V., Tangvoraphonkchai, V., Titapant, V., Pipitgool, V., Viriyapap, D., Sriamporn, S., 1990. A high incidence of liver cancer in Khon Kaen Province, Thailand. Southeast Asian J Trop Med Public Health 21, 489-494.

Vatanasapt, V., Uttaravichien, T., Mairiang, E., Pairojkul, C., Chartbanchachai, V.,and Haswell-Elkins, M. R., 1990. Northeast Thailand : a region with high incidence of cholangiocarcinoma. Lancet 1, 116-117.

White, D.L., Li, D., Nurgalieva, Z., El-Serag, H.B., 2008. Genetic variants of glutathione S-transferase as possible risk factors for hepatocellular carcinoma: a HuGE systematic review and meta-analysis. Am J Epidemiol 167, 377-389.

WHO, 1995. Control of foodborne trematode infections. Report of a WHO Study Group. World Health Organ Tech Rep Ser 849, 1-157.

Wongratanacheewin, S., Sermswan, R.W., Sirisinha, S., 2003. Immunology and molecular biology of Opisthorchis viverrini infection. Acta Trop 88, 195-207.

Yongvanit, P., Pinlaor, S., Bartsch, H., 2011. Oxidative and nitrative DNA damage: Key events in opisthorchiasis-induced carcinogenesis. Parasitology international.

Yoon, Y.J., Chang, H.Y., Ahn, S.H., Kim, J.K., Park, Y.K., Kang, D.R., Park, J.Y., Myoung, S.M., Kim do, Y., Chon, C.Y., Han, K.H., 2008. MDM2 and p53 polymorphisms are associated with the development of hepatocellular carcinoma in patients with chronic hepatitis B virus infection. Carcinogenesis 29, 1192-1196.

Figure 1 Alignment of the small subunit rRNA gene derived from *P. vivax* (GenBank accession no.U83877) and *P. falciparum* (GenBank accession no.AF145334). Plas_F and Plas_R show position of forward and reverse PCR primers, respectively, as well as Plas_S shows position of sequencing primer. Target region and four asterisks in target region demonstrate the position that was used to identify and differentiate *P. vivax* and *P. falciparum* by pyrosequencing technique.

Figure 2 Pyrograms showing sequence analysis (SQA) of 24- and 21-base fragments of the small subunit rRNA gene of *P. vivax* (a-c) and *P. falciparum* (d-f) using pyrosequencing, respectively. Pyrosequencing was performed by addition of enzyme (E) and substrate (S), and four different nucleotides, enclosed in two squares in the pyrograms were analysed to discriminate *P. vivax* (a-c) and *P. falciparum* (d-f). The pyrograms represent the two different sequences of *P. vivax* (a-c): ACTAG-G**CT**TTGGATGAAAG**AT**TTT and *P. falciparum* (d-f): ACTAGG**TG**TTGGATG-AAAG**TG** derived from positive control plasmids (a, d), patients at Mae-Sod (b, e) and Phang-Nga (c, f). Theoretical pyrogram patterns (top of each panel showing in histograms) and examples of raw data from pyrosequencing (bottom of each panel showing in peaks) were shown. Y-axis represents level of fluorescence emitted by the incorporation of a nucleotide base and x-axis represents total number of bases added at that point in time; A, T, C, G, nucleotide bases.