1. Melakukan penelitian untuk mengetahui jalur lain selain melalui CTR1 dan ERCC1 pada resistensi kanker serviks terhadap cisplatin.
2. Melakukan pemeriksaan ekspresi HSP70 pada kanker serviks sebelum diberikan kemoterapi cisplatin untuk memperkirakan respon terapi.

DAFTAR PUSTAKA

Ahmad, S. 2010. Platinum-DNA interactions and subsequent cellular processes controlling sensitivity to anticancer platinum complexes. *Chem Biodivers,* 7**,** 543-66.

Aida, T., Takebayashi, Y., Shimizu, T., Okamura, C., Higasimoto, M., Kanzaki, A., et al. 2005. Expression of copper-transporting P-type adenosine triphosphatase (ATP7B) as a prognostic factor in human endometrial carcinoma. *Gynecol Oncol,* 97**,** 41-5.

Al-Mansour, Z. & Verschraegen, C. 2010. Locally advanced cervical cancer: what is the standard of care? *Curr Opin Oncol,* 22**,** 503-12.

Andrews, P. A., Velury, S., Mann, S. C. & Howell, S. B. 1988. cis-Diamminedichloroplatinum(II) accumulation in sensitive and resistant human ovarian carcinoma cells. *Cancer Res,* 48**,** 68-73.

Askandar, B. & Santoso, C. 2011. The effectiveness of neodjuvant chemotherapy in cervical cancer stage IIB. *Gynecologic Oncology,* 120, Supplement 1**,** S114.

Aziz, M. F. 2009. Gynecological cancer in Indonesia. *J Gynecol Oncol,* 20**,** 8-10.

Bajpai, D., Banerjee, A., Pathak, S., Jain, S. K. & Singh, N. 2013. Decreased expression of DNA repair genes (XRCC1, ERCC1, ERCC2, and ERCC4) in squamous intraepithelial lesion and invasive squamous cell carcinoma of the cervix. *Mol Cell Biochem,* 377**,** 45-53.

Barry, M. A., Behnke, C. A. & Eastman, A. 1990. Activation of programmed cell death (apoptosis) by cisplatin, other anticancer drugs, toxins and hyperthermia. *Biochem Pharmacol,* 40**,** 2353-62.

Basu, A. & Krishnamurthy, S. 2010. Cellular responses to Cisplatin-induced DNA damage. *J Nucleic Acids,* 2010.

Becker, M. A., Farzan, T., Harrington, S. C., Krempski, J., Weroha, S. J., Hou, X., et al. 2013. Dual HER/VEGF receptor targeting inhibits in vivo ovarian cancer tumor growth. *Mol Cancer Ther*.

Behtash, N., Nazari, Z., Ayatollahi, H., Modarres, M., Ghaemmaghami, F. & Mousavi, A. 2006. Neoadjuvant chemotherapy and radical surgery compared to radical surgery alone in bulky stage IB–IIA cervical cancer. *European Journal of Surgical Oncology (EJSO),* 32**,** 1226-1230.

Benedet, J. L., Bender, H., Jones, H., 3rd, Ngan, H. Y. & Pecorelli, S. 2000. FIGO staging classifications and clinical practice guidelines in the management of gynecologic cancers. FIGO Committee on Gynecologic Oncology. *Int J Gynaecol Obstet,* 70**,** 209-62.

Berndtsson, M., Hagg, M., Panaretakis, T., Havelka, A. M., Shoshan, M. C. & Linder, S. 2007. Acute apoptosis by cisplatin requires induction of reactive oxygen species but is not associated with damage to nuclear DNA. *Int J Cancer,* 120**,** 175-80.

Bipat, S., Glas, A. S., Van Der Velden, J., Zwinderman, A. H., Bossuyt, P. M. & Stoker, J. 2003. Computed tomography and magnetic resonance imaging in staging of uterine cervical carcinoma: a systematic review. *Gynecol Oncol,* 91**,** 59-66.

Blair, B. G., Larson, C. A., Safaei, R. & Howell, S. B. 2009. Copper transporter 2 regulates the cellular accumulation and cytotoxicity of Cisplatin and Carboplatin. *Clin Cancer Res,* 15**,** 4312-21.

Bonomi, P., Blessing, J. A., Stehman, F. B., Disaia, P. J., Walton, L. & Major, F. J. 1985. Randomized trial of three cisplatin dose schedules in squamous-cell carcinoma of the cervix: a Gynecologic Oncology Group study. *J Clin Oncol,* 3**,** 1079-85.

Borst, P., Evers, R., Kool, M. & Wijnholds, J. 2000. A family of drug transporters: the multidrug resistance-associated proteins. *J Natl Cancer Inst,* 92**,** 1295-302.

Brandtzaeg, P. 1998. The increasing power of immunohistochemistry and immunocytochemistry. *J Immunol Methods,* 216**,** 49-67.

Brozovic, A., Ambriovic-Ristov, A. & Osmak, M. 2010. The relationship between cisplatin-induced reactive oxygen species, glutathione, and BCL-2 and resistance to cisplatin. *Crit Rev Toxicol,* 40**,** 347-59.

Burd, E. M. 2003. Human papillomavirus and cervical cancer. *Clin Microbiol Rev,* 16**,** 1-17.

Caley, A. & Jones, R. 2012. The principles of cancer treatment by chemotherapy. *Surgery (Oxford),* 30**,** 186-190.

Castle, P. E., Ashfaq, R., Ansari, F. & Muller, C. Y. 2005. Immunohistochemical evaluation of heat shock proteins in normal and preinvasive lesions of the cervix. *Cancer Lett,* 229**,** 245-52.

Cepeda, V., Fuertes, M. A., Castilla, J., Alonso, C., Quevedo, C. & Perez, J. M. 2007. Biochemical mechanisms of cisplatin cytotoxicity. *Anticancer Agents Med Chem,* 7**,** 3-18.

Chabner, B. A. & Roberts, T. G., Jr. 2005. Timeline: Chemotherapy and the war on cancer. *Nat Rev Cancer,* 5**,** 65-72.

Chen, G. G. & Lai, P. B. S. 2009. *Apoptosis in Carcinogenesis and Chemotherapy: Apoptosis in cancer,* Springer.

Chen, H., Liang, C., Zhang, L., Huang, S. & Wu, X. 2008. Clinical efficacy of modified preoperative neoadjuvant chemotherapy in the treatment of locally advanced (stage IB2 to IIB) cervical cancer: A randomized study. *Gynecologic Oncology,* 110**,** 308-315.

Chen, H. H. W., Yan, J.-J., Chen, W.-C., Kuo, M. T., Lai, Y.-H., Lai, W.-W., et al. 2012. Predictive and prognostic value of human copper transporter 1 (hCtr1) in patients with stage III non-small-cell lung cancer receiving first-line platinum-based doublet chemotherapy. *Lung Cancer (Amsterdam, Netherlands),* 75**,** 228-234.

Chen, R. J., Lin, Y. H., Chen, C. A., Huang, S. C., Chow, S. N. & Hsieh, C. Y. 1999. Influence of histologic type and age on survival rates for invasive cervical carcinoma in Taiwan. *Gynecol Oncol,* 73**,** 184-90.

Cheng, X. D., Lu, W. G., Ye, F., Wan, X. Y. & Xie, X. 2009. The association of XRCC1 gene single nucleotide polymorphisms with response to neoadjuvant chemotherapy in locally advanced cervical carcinoma. *J Exp Clin Cancer Res,* 28**,** 91.

Chiu, T. J., Chen, C. H., Chien, C. Y., Li, S. H., Tsai, H. T. & Chen, Y. J. 2011. High ERCC1 expression predicts cisplatin-based chemotherapy resistance and poor outcome in unresectable squamous cell carcinoma of head and neck in a betel-chewing area. *J Transl Med,* 9**,** 31.

Chu, C. S. & Rubin, S. C. 2007. Chapter 18 - Basic Principles of Chemotherapy. *In:* Philip, J. D., Md & William T. Creasman, M. D. (eds.) *Clinical Gynecologic Oncology (Seventh Edition).* Edinburgh: Mosby.

Chu, G. 1994. Cellular responses to cisplatin. The roles of DNA-binding proteins and DNA repair. *J Biol Chem,* 269**,** 787-90.

Colombo, N., Carinelli, S., Colombo, A., Marini, C., Rollo, D. & Sessa, C. 2012. Cervical cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Ann Oncol,* 23 Suppl 7**,** vii27-32.

Colombo, N. & Peiretti, M. 2010. Critical Review of Neoadjuvant Chemotherapy Followed by Surgery for Locally Advanced Cervical Cancer. *International Journal of Gynecological Cancer,* 20**,** S47-S48 10.1111/IGC.0b013e3181f967ed.

Costa, S., Terzano, P., Santini, D., Ceccarelli, C., Martoni, A., Angelelli, B., et al. 2001. Neoadjuvant chemotherapy in cervical carcinoma: regulators of cell cycle, apoptosis, and proliferation as determinants of response to therapy and disease outcome. *Am J Clin Pathol,* 116**,** 729-37.

Cui, Y., Konig, J., Buchholz, J. K., Spring, H., Leier, I. & Keppler, D. 1999. Drug resistance and ATP-dependent conjugate transport mediated by the apical multidrug resistance protein, MRP2, permanently expressed in human and canine cells. *Mol Pharmacol,* 55**,** 929-37.

Dale, D. C. 2003. Poor prognosis in elderly patients with cancer: the role of bias and undertreatment. *J Support Oncol,* 1**,** 11-7.

Dasari, S. & Bernard Tchounwou, P. 2014. Cisplatin in cancer therapy: Molecular mechanisms of action. *European Journal of Pharmacology,* 740**,** 364-378.

De Matos, L. L., Trufelli, D. C., De Matos, M. G. L. & Da Silva Pinhal, M. A. 2010. Immunohistochemistry as an Important Tool in Biomarkers Detection and Clinical Practice. *Biomarker Insights,* 5**,** 9-20.

De Sanjose, S., Quint, W. G., Alemany, L., Geraets, D. T., Klaustermeier, J. E., Lloveras, B., et al. 2010. Human papillomavirus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. *Lancet Oncol,* 11**,** 1048-56.

Doll, C. M., Prystajecky, M., Eliasziw, M., Klimowicz, A. C., Petrillo, S. K., Craighead, P. S., et al. 2010. Low ERCC1 mRNA and protein expression are associated with worse survival in cervical cancer patients treated with radiation alone. *Radiother Oncol,* 97**,** 352-9.

Duenas-Gonzalez, A., Lopez-Graniel, C., Gonzalez-Enciso, A., Cetina, L., Rivera, L., Mariscal, I., et al. 2003. A phase II study of multimodality treatment for locally advanced cervical cancer: neoadjuvant carboplatin and paclitaxel followed by radical hysterectomy and adjuvant cisplatin chemoradiation. *Ann Oncol,* 14**,** 1278-84.

Duenas-Gonzalez, A., Lopez-Graniel, C., Gonzalez-Enciso, A., Mohar, A., Rivera, L., Mota, A., et al. 2002. Concomitant chemoradiation versus neoadjuvant chemotherapy in locally advanced cervical carcinoma: results from two consecutive phase II studies. *Ann Oncol,* 13**,** 1212-9.

Dupont, N. C. & Monk, B. J. 2006. Chemotherapy in the management of cervical carcinoma. *Clin Adv Hematol Oncol,* 4**,** 279-86.

Eisenhauer, E. A., Therasse, P., Bogaerts, J., Schwartz, L. H., Sargent, D., Ford, R., et al. 2009. New response evaluation criteria in solid tumours: revised RECIST guideline (version 1.1). *Eur J Cancer,* 45**,** 228-47.

Elmore, S. 2007. Apoptosis: a review of programmed cell death. *Toxicol Pathol,* 35**,** 495-516.

Fan, T. J., Han, L. H., Cong, R. S. & Liang, J. 2005. Caspase family proteases and apoptosis. *Acta Biochim Biophys Sin (Shanghai),* 37**,** 719-27.

Fichtinger-Schepman, A. M., Van Der Veer, J. L., Den Hartog, J. H., Lohman, P. H. & Reedijk, J. 1985. Adducts of the antitumor drug cis-diamminedichloroplatinum(II) with DNA: formation, identification, and quantitation. *Biochemistry,* 24**,** 707-13.

Florea, A.-M. & Büsselberg, D. 2011. Cisplatin as an Anti-Tumor Drug: Cellular Mechanisms of Activity, Drug Resistance and Induced Side Effects. *Cancers,* 3**,** 1351-1371.

Frumovitz, M., Sun, C. C., Schmeler, K. M., Deavers, M. T., Dos Reis, R., Levenback, C. F., et al. 2009. Parametrial involvement in radical hysterectomy specimens for women with early-stage cervical cancer. *Obstet Gynecol,* 114**,** 93-9.

Fuertes, M. A., Alonso, C. & Perez, J. M. 2003. Biochemical modulation of Cisplatin mechanisms of action: enhancement of antitumor activity and circumvention of drug resistance. *Chem Rev,* 103**,** 645-62.

Fujii, T., Toyooka, S., Ichimura, K., Fujiwara, Y., Hotta, K., Soh, J., et al. 2008. ERCC1 protein expression predicts the response of cisplatin-based neoadjuvant chemotherapy in non-small-cell lung cancer. *Lung Cancer,* 59**,** 377-84.

Fukushima, C., Murakami, A., Yoshitomi, K., Sueoka, K., Nawata, S., Nakamura, K., et al. 2011. Comparative proteomic profiling in squamous cell carcinoma of the uterine cervix. *Proteomics Clin Appl,* 5**,** 133-40.

Fulda, S. 2009. Tumor resistance to apoptosis. *Int J Cancer,* 124**,** 511-5.

Gaillard, P.-H. L. & Wood, R. D. 2001. Activity of individual ERCC1 and XPF subunits in DNA nucleotide excision repair. *Nucleic Acids Research,* 29**,** 872-879.

Galluzzi, L., Senovilla, L., Vitale, I., Michels, J., Martins, I., Kepp, O., et al. 2012. Molecular mechanisms of cisplatin resistance. *Oncogene,* 31**,** 1869-83.

Garrido, C., Schmitt, E., Cande, C., Vahsen, N., Parcellier, A. & Kroemer, G. 2003. HSP27 and HSP70: potentially oncogenic apoptosis inhibitors. *Cell Cycle,* 2**,** 579-84.

Gately, D. P. & Howell, S. B. 1993. Cellular accumulation of the anticancer agent cisplatin: a review. *Br J Cancer,* 67**,** 1171-6.

Giardina, G., Richiardi, G., Danese, S., Ottone, P., Ohlmeier, U. & Gargiulo, T. 1997. *Weekly cisplatin as neoadjuvant chemotherapy in locally advanced cervical cancer: a well-tolerated alternative*.

Gonzalez-Martin, A., Gonzalez-Cortijo, L., Carballo, N., Garcia, J. F., Lapuente, F., Rojo, A., et al. 2008. The current role of neoadjuvant chemotherapy in the management of cervical carcinoma. *Gynecol Oncol,* 110**,** S36-40.

Gonzalez, V. M., Fuertes, M. A., Alonso, C. & Perez, J. M. 2001. Is cisplatin-induced cell death always produced by apoptosis? *Mol Pharmacol,* 59**,** 657-63.

Goodsell, D. S. 2006. The Molecular Perspective: Cisplatin. *The Oncologist,* 11**,** 316-317.

Gossage, L. & Madhusudan, S. 2007. Current status of excision repair cross complementing-group 1 (ERCC1) in cancer. *Cancer Treat Rev,* 33**,** 565-77.

Gottesman, M. M. & Pastan, I. 1988. The multidrug transporter, a double-edged sword. *Journal of Biological Chemistry,* 263**,** 12163-6.

Gupta, A. & Lutsenko, S. 2009. Human copper transporters: mechanism, role in human diseases and therapeutic potential. *Future Med Chem,* 1**,** 1125-42.

Hall, M. D., Okabe, M., Shen, D. W., Liang, X. J. & Gottesman, M. M. 2008. The role of cellular accumulation in determining sensitivity to platinum-based chemotherapy. *Annu Rev Pharmacol Toxicol,* 48**,** 495-535.

Hannun, Y. A. 1997. Apoptosis and the dilemma of cancer chemotherapy. *Blood,* 89**,** 1845-53.

Hasegawa, K., Kato, R., Torii, Y., Ichikawa, R., Oe, S. & Udagawa, Y. 2011. The relationship between ERCC1 expression and clinical outcome in patients with FIGO stage I to stage II uterine cervical adenocarcinoma. *Int J Gynecol Cancer,* 21**,** 1479-85.

Hattinger, C. M., Michelacci, F., Sella, F., Magagnoli, G., Benini, S., Gambarotti, M., et al. 2015. ercc1 protein expression predicts survival in patients with high-grade, non-metastatic osteosarcoma treated with neoadjuvant chemotherapy. *Histopathology*.

He, L., Wu, L., Su, G., Wei, W., Liang, L., Han, L., et al. 2014. The efficacy of neoadjuvant chemotherapy in different histological types of cervical cancer. *Gynecol Oncol,* 134**,** 419-25.

Henkels, K. M. & Turchi, J. J. 1997. Induction of apoptosis in cisplatin-sensitive and -resistant human ovarian cancer cell lines. *Cancer Res,* 57**,** 4488-92.

Holzer, A. K., Katano, K., Klomp, L. W. & Howell, S. B. 2004a. Cisplatin rapidly down-regulates its own influx transporter hCTR1 in cultured human ovarian carcinoma cells. *Clin Cancer Res,* 10**,** 6744-9.

Holzer, A. K., Samimi, G., Katano, K., Naerdemann, W., Lin, X., Safaei, R., et al. 2004b. The copper influx transporter human copper transport protein 1 regulates the uptake of cisplatin in human ovarian carcinoma cells. *Mol Pharmacol,* 66**,** 817-23.

Horn, L. C., Fischer, U., Raptis, G., Bilek, K. & Hentschel, B. 2007. Tumor size is of prognostic value in surgically treated FIGO stage II cervical cancer. *Gynecol Oncol,* 107**,** 310-5.

Howell, S. B., Safaei, R., Larson, C. A. & Sailor, M. J. 2010. Copper transporters and the cellular pharmacology of the platinum-containing cancer drugs. *Mol Pharmacol,* 77**,** 887-94.

Hsieh, F. Y. & Liu, A. A. 1990. Adequacy of sample size in health studies. Stanley Lemeshow, David W. Hosmer Jr., Janelle Klar and Stephen K. Lwanga published on behalf of WHO by Wiley, Chichester, 1990. No. of pages: xii + 233. Price:£D17.50. *Statistics in Medicine,* 9**,** 1382-1382.

Irie, T., Kigawa, J., Minagawa, Y., Itamochi, H., Sato, S., Akeshima, R., et al. 2000. Prognosis and clinicopathological characteristics of Ib-IIb adenocarcinoma of the uterine cervix in patients who have had radical hysterectomy. *Eur J Surg Oncol,* 26**,** 464-7.

Ishida, S., Lee, J., Thiele, D. J. & Herskowitz, I. 2002. Uptake of the anticancer drug cisplatin mediated by the copper transporter Ctr1 in yeast and mammals. *Proc Natl Acad Sci U S A,* 99**,** 14298-302.

Ishida, S., Mccormick, F., Smith-Mccune, K. & Hanahan, D. 2010. Enhancing tumor-specific uptake of the anticancer drug cisplatin with a copper chelator. *Cancer Cell,* 17**,** 574-83.

Jamieson, E. R. & Lippard, S. J. 1999. Structure, Recognition, and Processing of Cisplatin-DNA Adducts. *Chem Rev,* 99**,** 2467-98.

Jemal, A., Center, M. M., Desantis, C. & Ward, E. M. 2010. Global patterns of cancer incidence and mortality rates and trends. *Cancer Epidemiol Biomarkers Prev,* 19**,** 1893-907.

Jena, A., Oberoi, R., Rawal, S., Das, S. K. & Pandey, K. K. 2005. Parametrial invasion in carcinoma of cervix: role of MRI measured tumour volume. *Br J Radiol,* 78**,** 1075-7.

Jones, S. L., Hickson, I. D., Harris, A. L. & Harnett, P. R. 1994. Repair of cisplatin-DNA adducts by protein extracts from human ovarian carcinoma. *Int J Cancer,* 59**,** 388-93.

Jung, Y. & Lippard, S. J. 2007. Direct cellular responses to platinum-induced DNA damage. *Chem Rev,* 107**,** 1387-407.

Kalayda, G. V., Wagner, C. H. & Jaehde, U. 2012. Relevance of copper transporter 1 for cisplatin resistance in human ovarian carcinoma cells. *J Inorg Biochem,* 116**,** 1-10.

Kam, P. C. & Ferch, N. I. 2000. Apoptosis: mechanisms and clinical implications. *Anaesthesia,* 55**,** 1081-93.

Kanduc, D., Mittelman, A., Serpico, R., Sinigaglia, E., Sinha, A. A., Natale, C., et al. 2002. Cell death: apoptosis versus necrosis (review). *Int J Oncol,* 21**,** 165-70.

Kartalou, M. & Essigmann, J. M. 2001a. Mechanisms of resistance to cisplatin. *Mutat Res,* 478**,** 23-43.

Kartalou, M. & Essigmann, J. M. 2001b. Recognition of cisplatin adducts by cellular proteins. *Mutat Res,* 478**,** 1-21.

Katano, K., Kondo, A., Safaei, R., Holzer, A., Samimi, G., Mishima, M., et al. 2002. Acquisition of resistance to cisplatin is accompanied by changes in the cellular pharmacology of copper. *Cancer Res,* 62**,** 6559-65.

Katanyoo, K., Sanguanrungsirikul, S. & Manusirivithaya, S. 2012. Comparison of treatment outcomes between squamous cell carcinoma and adenocarcinoma in locally advanced cervical cancer. *Gynecol Oncol,* 125**,** 292-6.

Kaufmann, S. H. & Earnshaw, W. C. 2000. Induction of apoptosis by cancer chemotherapy. *Exp Cell Res,* 256**,** 42-9.

Kaufmann, S. H., Lee, S. H., Meng, X. W., Loegering, D. A., Kottke, T. J., Henzing, A. J., et al. 2008. Apoptosis-associated caspase activation assays. *Methods,* 44**,** 262-72.

Kelland, L. R. 2000. Preclinical perspectives on platinum resistance. *Drugs,* 59 Suppl 4**,** 1-8; discussion 37-8.

Kerpel-Fronius, S. 2006. Cisplatin and its Analogues for Cancer Chemotherapy. *Analogue-based Drug Discovery*. Wiley-VCH Verlag GmbH & Co. KGaA.

Kim, B. E., Nevitt, T. & Thiele, D. J. 2008. Mechanisms for copper acquisition, distribution and regulation. *Nat Chem Biol,* 4**,** 176-85.

Kim, E. S., Tang, X., Peterson, D. R., Kilari, D., Chow, C. W., Fujimoto, J., et al. 2014. Copper transporter CTR1 expression and tissue platinum concentration in non-small cell lung cancer. *Lung Cancer,* 85**,** 88-93.

Kim, H. J. & Kim, W. 2012. Method of tumor volume evaluation using magnetic resonance imaging for outcome prediction in cervical cancer treated with concurrent chemotherapy and radiotherapy. *Radiat Oncol J,* 30**,** 70-7.

Kim, K. K., Jang, T. J. & Kim, J. R. 1998. HSP70 and ER expression in cervical intraepithelial neoplasia and cervical cancer. *J Korean Med Sci,* 13**,** 383-8.

Kim, T. E., Park, B. J., Kwack, H. S., Kwon, J. Y., Kim, J. H. & Yoon, S. C. 2012. Outcomes and prognostic factors of cervical cancer after concurrent chemoradiation. *J Obstet Gynaecol Res,* 38**,** 1315-20.

Kirschner, K. & Melton, D. W. 2010. Multiple Roles of the ERCC1-XPF Endonuclease in DNA Repair and Resistance to Anticancer Drugs. *Anticancer Research,* 30**,** 3223-3232.

Kleine, W., Rau, K., Schwoeorer, D. & Pfleiderer, A. 1989. Prognosis of the adenocarcinoma of the cervix uteri: a comparative study. *Gynecol Oncol,* 35**,** 145-9.

Koberle, B., Grimaldi, K. A., Sunters, A., Hartley, J. A., Kelland, L. R. & Masters, J. R. 1997. DNA repair capacity and cisplatin sensitivity of human testis tumour cells. *Int J Cancer,* 70**,** 551-5.

Koberle, B., Tomicic, M. T., Usanova, S. & Kaina, B. 2010. Cisplatin resistance: preclinical findings and clinical implications. *Biochim Biophys Acta,* 1806**,** 172-82.

Kohler, C., Orrenius, S. & Zhivotovsky, B. 2002. Evaluation of caspase activity in apoptotic cells. *J Immunol Methods,* 265**,** 97-110.

Koike, K., Kawabe, T., Tanaka, T., Toh, S., Uchiumi, T., Wada, M., et al. 1997. A canalicular multispecific organic anion transporter (cMOAT) antisense cDNA enhances drug sensitivity in human hepatic cancer cells. *Cancer Res,* 57**,** 5475-9.

Komatsu, M., Sumizawa, T., Mutoh, M., Chen, Z. S., Terada, K., Furukawa, T., et al. 2000. Copper-transporting P-type adenosine triphosphatase (ATP7B) is associated with cisplatin resistance. *Cancer Res,* 60**,** 1312-6.

Kroese, F. G. M. 2001. Immunohistochemical Detection of Tissue and Cellular Antigens. *eLS.* John Wiley & Sons, Ltd.

Lagasse, L. D., Creasman, W. T., Shingleton, H. M., Ford, J. H. & Blessing, J. A. 1980. Results and complications of operative staging in cervical cancer: experience of the Gynecologic Oncology Group. *Gynecol Oncol,* 9**,** 90-8.

Lanneau, D., Brunet, M., Frisan, E., Solary, E., Fontenay, M. & Garrido, C. 2008. Heat shock proteins: essential proteins for apoptosis regulation. *J Cell Mol Med,* 12**,** 743-61.

Larson, C. A., Blair, B. G., Safaei, R. & Howell, S. B. 2009. The Role of the Mammalian Copper Transporter 1 in the Cellular Accumulation of Platinum-Based Drugs. *Molecular Pharmacology,* 75**,** 324-330.

Leath Iii, C. A. & Straughn Jr, J. M. Chemotherapy for advanced and recurrent cervical carcinoma: Results from cooperative group trials. *Gynecologic Oncology*.

Lebwohl, D. & Canetta, R. 1998. Clinical development of platinum complexes in cancer therapy: an historical perspective and an update. *European Journal of Cancer,* 34**,** 1522-1534.

Lee, D. W., Kim, Y. T., Kim, J. H., Kim, S., Kim, S. W., Nam, E. J., et al. 2010. Clinical significance of tumor volume and lymph node involvement assessed by MRI in stage IIB cervical cancer patients treated with concurrent chemoradiation therapy. *J Gynecol Oncol,* 21**,** 18-23.

Lee, H. W., Han, J. H., Kim, J. H., Lee, M. H., Jeong, S. H., Kang, S. Y., et al. 2008a. Expression of excision repair cross-complementation group 1 protein predicts poor outcome in patients with small cell lung cancer. *Lung Cancer,* 59**,** 95-104.

Lee, Y. K., Han, S. S., Kim, J. W., Park, N. H., Song, Y. S. & Kang, S. B. 2008b. Value of pelvic examination and imaging modality for the evaluation of tumor size in cervical cancer. *J Gynecol Oncol,* 19**,** 108-12.

Li, R., Lu, S. T., Si, J. G., Liu, B., Wang, H., Mei, Y. Y., et al. 2013. Prognostic value of responsiveness of neoadjuvant chemotherapy before surgery for patients with stage IB(2)/IIA(2) cervical cancer. *Gynecol Oncol,* 128**,** 524-9.

Liedert, B., Materna, V., Schadendorf, D., Thomale, J. & Lage, H. 2003. Overexpression of cMOAT (MRP2/ABCC2) is associated with decreased formation of platinum-DNA adducts and decreased G2-arrest in melanoma cells resistant to cisplatin. *J Invest Dermatol,* 121**,** 172-6.

Liu, H., Han, Y., Mi, R., Zhang, Y., Su, G., Wang, H., et al. 2011. Identification of cervical cancer proteins associated with treatment with paclitaxel and cisplatin in patients. *Int J Gynecol Cancer,* 21**,** 1452-7.

Long, H. J., 3rd, Bundy, B. N., Grendys, E. C., Jr., Benda, J. A., Mcmeekin, D. S., Sorosky, J., et al. 2005. Randomized phase III trial of cisplatin with or without topotecan in carcinoma of the uterine cervix: a Gynecologic Oncology Group Study. *J Clin Oncol,* 23**,** 4626-33.

Mansouri, A., Zhang, Q., Ridgway, L. D., Tian, L. & Claret, F. X. 2003. Cisplatin resistance in an ovarian carcinoma is associated with a defect in programmed cell death control through XIAP regulation. *Oncol Res,* 13**,** 399-404.

Martin, L. P., Hamilton, T. C. & Schilder, R. J. 2008. Platinum Resistance: The Role of DNA Repair Pathways. *Clinical Cancer Research,* 14**,** 1291-1295.

Masciullo, G. 2007. Molecular Genetics in Cervical Cancer. *In:* Giordano A, B. A., Kurman Rj (ed.) *Molecular Pathology of Gynecologic Cancer.* Philadelphia: Humana Press.

Mcneil, E. M. & Melton, D. W. 2012. DNA repair endonuclease ERCC1–XPF as a novel therapeutic target to overcome chemoresistance in cancer therapy. *Nucleic Acids Research*.

Moore, D. H., Blessing, J. A., Mcquellon, R. P., Thaler, H. T., Cella, D., Benda, J., et al. 2004. Phase III study of cisplatin with or without paclitaxel in stage IVB, recurrent, or persistent squamous cell carcinoma of the cervix: a gynecologic oncology group study. *J Clin Oncol,* 22**,** 3113-9.

Munoz, N., Franceschi, S., Bosetti, C., Moreno, V., Herrero, R., Smith, J. S., et al. 2002. Role of parity and human papillomavirus in cervical cancer: the IARC multicentric case-control study. *Lancet,* 359**,** 1093-101.

Nakanishi, T., Ishikawa, H., Suzuki, Y., Inoue, T., Nakamura, S. & Kuzuya, K. 2000. A comparison of prognoses of pathologic stage Ib adenocarcinoma and squamous cell carcinoma of the uterine cervix. *Gynecol Oncol,* 79**,** 289-93.

Nakayama, K., Kanzaki, A., Ogawa, K., Miyazaki, K., Neamati, N. & Takebayashi, Y. 2002. Copper-transporting P-type adenosine triphosphatase (ATP7B) as a cisplatin based chemoresistance marker in ovarian carcinoma: comparative analysis with expression of MDR1, MRP1, MRP2, LRP and BCRP. *Int J Cancer,* 101**,** 488-95.

Nanbu, K., Konishi, I., Komatsu, T., Mandai, M., Yamamoto, S., Kuroda, H., et al. 1996. Expression of heat shock proteins HSP70 and HSP90 in endometrial carcinomas. Correlation with clinicopathology, sex steroid receptor status, and p53 protein expression. *Cancer,* 77**,** 330-8.

Ngan, H. Y., Stanley, M., Liu, S. S. & Ma, H. K. 1994. HPV and p53 in cervical cancer. *Genitourin Med,* 70**,** 167-70.

Ngan, H. Y., Tsao, S. W., Liu, S. S. & Stanley, M. 1997. Abnormal expression and mutation of p53 in cervical cancer--a study at protein, RNA and DNA levels. *Genitourin Med,* 73**,** 54-8.

Noll, D. M., Mason, T. M. & Miller, P. S. 2006. Formation and repair of interstrand cross-links in DNA. *Chem Rev,* 106**,** 277-301.

Nuranna, L., Prastasari, R. & Sutrisna, B. 2014. *Survival of cervical cancer patients and its prognostic factors at Cipto Mangunkusumo Hospital, Jakarta*.

Olaussen, K. A., Dunant, A., Fouret, P., Brambilla, E., Andre, F., Haddad, V., et al. 2006. DNA repair by ERCC1 in non-small-cell lung cancer and cisplatin-based adjuvant chemotherapy. *N Engl J Med,* 355**,** 983-91.

Olaussen, K. A., Mountzios, G. & Soria, J. C. 2007. ERCC1 as a risk stratifier in platinum-based chemotherapy for nonsmall-cell lung cancer. *Curr Opin Pulm Med,* 13**,** 284-9.

Omura, G. A., Blessing, J. A., Vaccarello, L., Berman, M. L., Clarke-Pearson, D. L., Mutch, D. G., et al. 1997. Randomized trial of cisplatin versus cisplatin plus mitolactol versus cisplatin plus ifosfamide in advanced squamous carcinoma of the cervix: a Gynecologic Oncology Group study. *J Clin Oncol,* 15**,** 165-71.

Park, C. S., Joo, I. S., Song, S. Y., Kim, D. S., Bae, D. S. & Lee, J. H. 1999. An immunohistochemical analysis of heat shock protein 70, p53, and estrogen receptor status in carcinoma of the uterine cervix. *Gynecol Oncol,* 74**,** 53-60.

Park, D. C., Kim, J. H., Lew, Y. O., Kim, D. H. & Namkoong, S. E. 2004. Phase II trial of neoadjuvant paclitaxel and cisplatin in uterine cervical cancer. *Gynecol Oncol,* 92**,** 59-63.

Park, J. O., Lee, S. I., Song, S. Y., Kim, K., Kim, W. S., Jung, C. W., et al. 2003. Measuring Response in Solid Tumors: Comparison of RECIST and WHO Response Criteria. *Japanese Journal of Clinical Oncology,* 33**,** 533-537.

Park, J. S., Jeon, E. K., Chun, S. H., Won, H. S., Lee, A., Hur, S. Y., et al. 2011. ERCC1 (excision repair cross-complementation group 1) expression as a predictor for response of neoadjuvant chemotherapy for FIGO stage 2B uterine cervix cancer. *Gynecol Oncol,* 120**,** 275-9.

Patel, S., Liyanage, S. H., Sahdev, A., Rockall, A. G. & Reznek, R. H. 2010. Imaging of endometrial and cervical cancer. *Insights Imaging,* 1**,** 309-28.

Pecorelli, S., Zigliani, L. & Odicino, F. 2009. Revised FIGO staging for carcinoma of the cervix. *Int J Gynaecol Obstet,* 105**,** 107-8.

Petignat, P. & Roy, M. 2007. Diagnosis and management of cervical cancer. *BMJ,* 335**,** 765-8.

Pinkavova, I., Fischerova, D., Zikan, M., Burgetova, A., Slama, J., Svarovsky, J., et al. 2013. Transrectal ultrasound and magnetic resonance imaging in the evaluation of tumor size following neoadjuvant chemotherapy for locally advanced cervical cancer. *Ultrasound Obstet Gynecol,* 42**,** 705-12.

Rabik, C. A. & Dolan, M. E. 2007. Molecular mechanisms of resistance and toxicity associated with platinating agents. *Cancer Treat Rev,* 33**,** 9-23.

Ralhan, R. & Kaur, J. 1995. Differential expression of Mr 70,000 heat shock protein in normal, premalignant, and malignant human uterine cervix. *Clin Cancer Res,* 1**,** 1217-22.

Recoules-Arche, A., Rouzier, R., Rey, A., Villefranque, V., Haie-Meder, C., Pautier, P., et al. 2004. Les adénocarcinomes du col utérin ont-ils un plus mauvais pronostic que les carcinomes épidermoïdes ? *Gynécologie Obstétrique & Fertilité,* 32**,** 116-121.

Reed, J. C. 1997. Bcl-2 family proteins: regulators of apoptosis and chemoresistance in hematologic malignancies. *Semin Hematol,* 34**,** 9-19.

Rohde, M., Daugaard, M., Jensen, M. H., Helin, K., Nylandsted, J. & Jaattela, M. 2005. Members of the heat-shock protein 70 family promote cancer cell growth by distinct mechanisms. *Genes Dev,* 19**,** 570-82.

Rositch, A. F., Nowak, R. G. & Gravitt, P. E. 2014. Increased age and race-specific incidence of cervical cancer after correction for hysterectomy prevalence in the United States from 2000 to 2009. *Cancer,* 120**,** 2032-8.

Rydzewska, L., Tierney, J., Vale, C. L. & Symonds, P. R. 2012. Neoadjuvant chemotherapy plus surgery versus surgery for cervical cancer. *Cochrane Database Syst Rev,* 12**,** Cd007406.

Safaei, R. 2006. Role of copper transporters in the uptake and efflux of platinum containing drugs. *Cancer Lett,* 234**,** 34-9.

Safaei, R., Holzer, A. K., Katano, K., Samimi, G. & Howell, S. B. 2004a. The role of copper transporters in the development of resistance to Pt drugs. *J Inorg Biochem,* 98**,** 1607-13.

Safaei, R., Katano, K., Samimi, G., Naerdemann, W., Stevenson, J. L., Rochdi, M., et al. 2004b. Cross-resistance to cisplatin in cells with acquired resistance to copper. *Cancer Chemother Pharmacol,* 53**,** 239-46.

Safaei, R., Otani, S., Larson, B. J., Rasmussen, M. L. & Howell, S. B. 2008. Transport of cisplatin by the copper efflux transporter ATP7B. *Mol Pharmacol,* 73**,** 461-8.

Sala, E., Wakely, S., Senior, E. & Lomas, D. 2007. MRI of malignant neoplasms of the uterine corpus and cervix. *AJR Am J Roentgenol,* 188**,** 1577-87.

Samimi, G., Safaei, R., Katano, K., Holzer, A. K., Rochdi, M., Tomioka, M., et al. 2004. Increased expression of the copper efflux transporter ATP7A mediates resistance to cisplatin, carboplatin, and oxaliplatin in ovarian cancer cells. *Clin Cancer Res,* 10**,** 4661-9.

Sankari, S. L., Masthan, K. M., Babu, N. A., Bhattacharjee, T. & Elumalai, M. 2012. Apoptosis in cancer--an update. *Asian Pac J Cancer Prev,* 13**,** 4873-8.

Schacht, V. & Kern, J. S. 2015. Basics of Immunohistochemistry. *J Invest Dermatol,* 135**,** e30.

Schafer, K. A. 1998. The cell cycle: a review. *Vet Pathol,* 35**,** 461-78.

Schloffer, D., Horky, M., Kotala, V. & Wesierska-Gadek, J. 2003. Induction of cell cycle arrest and apoptosis in human cervix carcinoma cells during therapy by cisplatin. *Cancer Detect Prev,* 27**,** 481-93.

Schmitt, E., Gehrmann, M., Brunet, M., Multhoff, G. & Garrido, C. 2007. Intracellular and extracellular functions of heat shock proteins: repercussions in cancer therapy. *J Leukoc Biol,* 81**,** 15-27.

Shueng M.D, P.-W., Hsu M.D, W.-L., Jen M.D, P. D. Y.-M., Wu M.D, C.-J. & Liu M.D, H.-S. 1998. Neoadjuvant Chemotherapy Followed by Radiotherapy Should Not Be A Standard Approach for Locally Advanced Cervical Cancer. *International Journal of Radiation Oncology*Biology*Physics,* 40**,** 889-896.

Siddik, Z. H. 2003. Cisplatin: mode of cytotoxic action and molecular basis of resistance. *Oncogene,* 22**,** 7265-79.

Simanjuntak, R. & Askandar, B. 2012. Ekspresi Heat Shock Protein 70 (HSP-70) dan P53 Mutan sebagai Faktor Prediksi Operabilitas Pasca-kemoterapi Neoajuvan pada Kanker Serviks IIB. *Indonesian Journal of Cancer,* 6**,** 171-178.

Sinani, D., Adle, D. J., Kim, H. & Lee, J. 2007. Distinct mechanisms for Ctr1-mediated copper and cisplatin transport. *J Biol Chem,* 282**,** 26775-85.

Singh, N. & Arif, S. 2004. Histopathologic parameters of prognosis in cervical cancer--a review. *Int J Gynecol Cancer,* 14**,** 741-50.

Sorenson, C. M. & Eastman, A. 1988a. Influence of cis-diamminedichloroplatinum(II) on DNA synthesis and cell cycle progression in excision repair proficient and deficient Chinese hamster ovary cells. *Cancer Res,* 48**,** 6703-7.

Sorenson, C. M. & Eastman, A. 1988b. Mechanism of cis-diamminedichloroplatinum(II)-induced cytotoxicity: role of G2 arrest and DNA double-strand breaks. *Cancer Res,* 48**,** 4484-8.

Sreedhar, A. S. & Csermely, P. 2004. Heat shock proteins in the regulation of apoptosis: new strategies in tumor therapy: a comprehensive review. *Pharmacol Ther,* 101**,** 227-57.

Stadelmann, C. & Lassmann, H. 2000. Detection of apoptosis in tissue sections. *Cell Tissue Res,* 301**,** 19-31.

Steffensen, K. D., Smoter, M., Waldstrom, M., Grala, B., Bodnar, L., Stec, R., et al. 2014. Resistance to first line platinum paclitaxel chemotherapy in serous epithelial ovarian cancer: the prediction value of ERCC1 and Tau expression. *Int J Oncol,* 44**,** 1736-44.

Steffensen, K. D., Waldstrom, M. & Jakobsen, A. 2009. The relationship of platinum resistance and ERCC1 protein expression in epithelial ovarian cancer. *Int J Gynecol Cancer,* 19**,** 820-5.

Subak, L. L., Hricak, H., Powell, C. B., Azizi, L. & Stern, J. L. 1995. Cervical carcinoma: computed tomography and magnetic resonance imaging for preoperative staging. *Obstet Gynecol,* 86**,** 43-50.

Sugeno, H., Takebayashi, Y., Higashimoto, M., Ogura, Y., Shibukawa, G., Kanzaki, A., et al. 2004. Expression of copper-transporting P-type adenosine triphosphatase (ATP7B) in human hepatocellular carcinoma. *Anticancer Res,* 24**,** 1045-8.

Sugimori, H. & Iwasaka, T. 1997. Neoadjuvant chemotherapy for cancer of the uterine cervix. *International Journal of Clinical Oncology,* 2**,** 183-188.

Tambaro, R., Scambia, G., Di Maio, M., Pisano, C., Barletta, E., Iaffaioli, V. R., et al. 2004. The role of chemotherapy in locally advanced, metastatic and recurrent cervical cancer. *Critical Reviews in Oncology/Hematology,* 52**,** 33-44.

Tanida, S., Mizoshita, T., Ozeki, K., Tsukamoto, H., Kamiya, T., Kataoka, H., et al. 2012. Mechanisms of Cisplatin-Induced Apoptosis and of Cisplatin Sensitivity: Potential of BIN1 to Act as a Potent Predictor of Cisplatin Sensitivity in Gastric Cancer Treatment. *Int J Surg Oncol,* 2012**,** 862879.

Thigpen, T., Shingleton, H., Homesley, H., Lagasse, L. & Blessing, J. 1981. Cis-platinum in treatment of advanced or recurrent squamous cell carcinoma of the cervix: a phase II study of the Gynecologic Oncology Group. *Cancer,* 48**,** 899-903.

Tiligada, E. 2006. Chemotherapy: induction of stress responses. *Endocr Relat Cancer,* 13 Suppl 1**,** S115-24.

Toffoli, G., Bevilacqua, C., Franceschin, A. & Boiocchi, M. 1989. Effect of hyperthermia on intracellular drug accumulation and chemosensitivity in drug-sensitive and drug-resistant P388 leukaemia cell lines. *Int J Hyperthermia,* 5**,** 163-72.

Torigoe, T., Izumi, H., Ishiguchi, H., Yoshida, Y., Tanabe, M., Yoshida, T., et al. 2005. Cisplatin resistance and transcription factors. *Curr Med Chem Anticancer Agents,* 5**,** 15-27.

Tsodikov, O. V., Enzlin, J. H., Scharer, O. D. & Ellenberger, T. 2005. Crystal structure and DNA binding functions of ERCC1, a subunit of the DNA structure-specific endonuclease XPF-ERCC1. *Proc Natl Acad Sci U S A,* 102**,** 11236-41.

Tsodikov, O. V., Ivanov, D., Orelli, B., Staresincic, L., Shoshani, I., Oberman, R., et al. 2007. Structural basis for the recruitment of ERCC1-XPF to nucleotide excision repair complexes by XPA. *EMBO J,* 26**,** 4768-76.

Turchi, J. J. & Patrick, S. M. 2012. Chapter 6 - Targeting the Nucleotide Excision Repair Pathway for Therapeutic Applications. *In:* Mark, R. K. (ed.) *DNA Repair in Cancer Therapy*. San Diego: Academic Press.

Tzioras, S., Pavlidis, N., Paraskevaidis, E. & Ioannidis, J. P. 2007. Effects of different chemotherapy regimens on survival for advanced cervical cancer: systematic review and meta-analysis. *Cancer Treat Rev,* 33**,** 24-38.

Ushijima, R., Takayama, K., Izumi, M., Harada, T., Horiuchi, Y., Uchino, J., et al. 2007. Immunohistochemical expression of MRP2 and clinical resistance to platinum-based chemotherapy in small cell lung cancer. *Anticancer Res,* 27**,** 4351-8.

Van Engeland, M., Nieland, L. J., Ramaekers, F. C., Schutte, B. & Reutelingsperger, C. P. 1998. Annexin V-affinity assay: a review on an apoptosis detection system based on phosphatidylserine exposure. *Cytometry,* 31**,** 1-9.

Vasquez, K. M. 2010. Targeting and processing of site-specific DNA interstrand crosslinks. *Environ Mol Mutagen,* 51**,** 527-39.

Vinh-Hung, V., Bourgain, C., Vlastos, G., Cserni, G., De Ridder, M., Storme, G., et al. 2007. Prognostic value of histopathology and trends in cervical cancer: a SEER population study. *BMC Cancer,* 7**,** 164.

Wang, D. & Lippard, S. J. 2005. Cellular processing of platinum anticancer drugs. *Nat Rev Drug Discov,* 4**,** 307-20.

Wang, X. 2001. The expanding role of mitochondria in apoptosis. *Genes Dev,* 15**,** 2922-33.

Wong, R. S. 2011. Apoptosis in cancer: from pathogenesis to treatment. *J Exp Clin Cancer Res,* 30**,** 87.

Wood, R. D. 2010. Mammalian nucleotide excision repair proteins and interstrand crosslink repair. *Environ Mol Mutagen,* 51**,** 520-6.

Wu, H., Xiao, Z., Wang, K., Liu, W. & Hao, Q. 2013. MiR-145 is downregulated in human ovarian cancer and modulates cell growth and invasion by targeting p70S6K1 and MUC1. *Biochem Biophys Res Commun*.

Yamasaki, M., Makino, T., Masuzawa, T., Kurokawa, Y., Miyata, H., Takiguchi, S., et al. 2011. Role of multidrug resistance protein 2 (MRP2) in chemoresistance and clinical outcome in oesophageal squamous cell carcinoma. *Br J Cancer,* 104**,** 707-13.

Yang, X., Zheng, F., Xing, H., Gao, Q., Wei, W., Lu, Y., et al. 2004. Resistance to chemotherapy-induced apoptosis via decreased caspase-3 activity and overexpression of antiapoptotic proteins in ovarian cancer. *J Cancer Res Clin Oncol,* 130**,** 423-8.

Yoshida, H., Teramae, M., Yamauchi, M., Fukuda, T., Yasui, T., Sumi, T., et al. 2013. Association of copper transporter expression with platinum resistance in epithelial ovarian cancer. *Anticancer Res,* 33**,** 1409-14.

Yoshizawa, K., Nozaki, S., Kitahara, H., Ohara, T., Kato, K., Kawashiri, S., et al. 2007. Expression of Copper Efflux Transporter (ATP7B) in the Transport of Cisplatin in Cell Lines Derived From Invasive Oral Squamous Cell Carcinoma. *Oral Science International,* 4**,** 28-37.

Zamble, D. B., Mu, D., Reardon, J. T., Sancar, A. & Lippard, S. J. 1996. Repair of cisplatin--DNA adducts by the mammalian excision nuclease. *Biochemistry,* 35**,** 10004-13.

Zanetta, G., Lissoni, A., Pellegrino, A., Sessa, C., Colombo, N., Gueli-Alletti, D., et al. 1998. Neoadjuvant chemotherapy with cisplatin, ifosfamide and paclitaxel for locally advanced squamous-cell cervical cancer. *Ann Oncol,* 9**,** 977-80.

Zhao, H., Zhang, H., Du, Y. & Gu, X. 2014. Prognostic significance of BRCA1, ERCC1, RRM1, and RRM2 in patients with advanced non-small cell lung cancer receiving chemotherapy. *Tumour Biol,* 35**,** 12679-88.

Zisowsky, J., Koegel, S., Leyers, S., Devarakonda, K., Kassack, M. U., Osmak, M., et al. 2007. Relevance of drug uptake and efflux for cisplatin sensitivity of tumor cells. *Biochem Pharmacol,* 73**,** 298-307.