

DAFTAR PUSTAKA

- Abramov, Y., Webb, A.R., Miller, J.-J.R., Alshahrour, A., Botros, S.M., Goldberg, R.P., *et al.* (2006). Biomechanical characterization of vaginal versus abdominal surgical wound healing in the rabbit. *American Journal of Obstetrics and Gynecology*, 194(5):1472–1477.
- Akdeniz, H., Gursoy, K., Baykara, G., Dikmen, A., Ozakinci, H., Kocer, U. (2023). Comparison of the effect of the autogenic and xenogenic use of platelet-rich plasma on rabbit chondrocutaneous composite graft survival. *Journal of Plastic Surgery and Hand Surgery*, 57: 551–556.
- Akın, Y., Young, M., Elmussareh, M., Charalampogiannis, N., Gözen, A.S. (2018). The novel and minimally invasive treatment modalities for female pelvic floor muscle dysfunction; beyond the traditional. *Balkan Medical Journal*, 35: 358–366.
- Alves, R., Grimalt, R. (2018). A Review of Platelet-Rich Plasma: History, Biology, Mechanism of Action, and Classification. *Skin appendage disorders*, 4(1):18–24.
- Amable, P.R., Carias, R.B.V., Teixeira, M.V.T., Da Cruz Pacheco, Í., Corrêa Do Amaral, R.J.F., Granjeiro., *et al.* (2013). Platelet-rich plasma preparation for regenerative medicine: Optimization and quantification of cytokines and growth factors. *Stem cell research and therapy*, 4:1-13.
- Asfaha, S., Cenac, N., Houle, S., Altier, C., Papez, M.D., Nguyen, C., *et al.* (2007). Protease-activated receptor-4: A novel mechanism of inflammatory pain modulation. *British Journal of Pharmacology*, 150(2):176-185.
- Atilgan, A.E., Aydın, A. (2020). Cystocele Repair with Platelet-Rich Plasma. *Indian Journal of Surgery*, 83:726-730.
- Azyenela, R., Julianto, I., Wirohadidjojo, Y.W. (2018). The Addition of Hyaluronic Acid into Platelet-Rich Fibrin Lysate in Restoration of Senescent Human Dermal Fibroblasts Activities. *Malaysian Journal of Medical and Biological Research*, 5: 85–92.
- Bailey, A.J., Paul, R.G., Knott, L. (1998). Mechanisms of maturation and ageing of collagen. *Mechanisms of ageing and development*, 106(1-2):1-56.
- Balkowiec, M., Maksym, R.B., Wlodarski, P.K. (2018). The bimodal role of matrix metalloproteinases and their inhibitors in etiology and pathogenesis of endometriosis (Review). *Molecular medicine reports*, 18(3):3123-3136.
- Bansal, S., Garg, A., Khurana, R., Chhabra, P. (2017). Platelet-rich fibrin or platelet-rich plasma – which one is better? an opinion. *Indian Journal of Dental Sciences*, 9(supplement 1): s49-s52.
- Barbon, S., Stocco, E., Macchi, V., Contran, M., Grandi, F., Borean, A., *et al.* (2019). Platelet-Rich Fibrin Scaffolds for Cartilage and Tendon Regenerative Medicine: From Bench to Bedside. *International journal of molecular sciences*, 20(7):1701.
- Baugé, C., Leclercq, S., Conrozier, T., Boumediene, K. (2015). TOL19-001 reduces inflammation and MMP expression in monolayer cultures of tendon cells. *BMC Complementary and Alternative Medicine*, 15:1-10.

- Bayer, A., Wijaya, B., Möbus, L., Rademacher, F., Rodewald, M., Tohidnezhad, M., *et al.* (2020). Platelet-Released Growth Factors and Platelet-Rich Fibrin Induce Expression of Factors Involved in Extracellular Matrix Organization in Human Keratinocytes. *International journal of molecular sciences*, 21(12): 4404.
- Benbow, U., Brinckerhoff, C.E. (1997). The AP-1 site and MMP gene regulation: What is all the fuss about?. *Matrix Biology*, 15(8-9): 519–526.
- Bielecki, T., M. Dohan Ehrenfest, D. (2012). Platelet-Rich Plasma (PRP) and Platelet-Rich Fibrin (PRF): Surgical Adjuvants, Preparations for In Situ Regenerative Medicine and Tools for Tissue Engineering. *Current pharmaceutical biotechnology*, 13(7): 1121–1130.
- Bodner-Adler, B., Alarab, M., Ruiz-Zapata, A.M., Latthe, P. (2020). Effectiveness of hormones in postmenopausal pelvic floor dysfunction—International Urogynecological Association research and development—committee opinion. *International Urogynecology Journal*, 31: 1577–1582.
- Boswell, S.G., Schnabel, L. V., Mohammed, H.O., Sundman, E.A., Minas, T., Fortier, L.A. (2014). Increasing Platelet Concentrations in Leukocyte-Reduced Platelet-Rich Plasma Decrease Collagen Gene Synthesis in Tendons. *The American journal of sports medicine*, 42(1): 42–49.
- Bray, R., Derpapas, A., Fernando, R., Khullar, V., Panayi, D.C. (2017). Does the vaginal wall become thinner as prolapse grade increases?. *International Urogynecology Journal*, 28:397-402.
- Carlin, G.L., Bodner, K., Kimberger, O., Haslinger, P., Schneeberger, C., Horvat, R., *et al.* (2020). The role of transforming growth factor- β (TGF- β 1) in postmenopausal women with pelvic organ prolapse: An immunohistochemical study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*: X, 7: 100-111.
- Caruana, A., Savina, D., Macedo, J.P., Soares, S.C. (2019). From Platelet-Rich Plasma to Advanced Platelet-Rich Fibrin: Biological Achievements and Clinical Advances in Modern Surgery. *European journal of dentistry*, 13(02): 280–286.
- Chalidis, B., Givissis, P., Papadopoulos, P., Pitsilos, C. (2023). Molecular and Biologic Effects of Platelet-Rich Plasma (PRP) in Ligament and Tendon Healing and Regeneration: A Systematic Review. *International Journal of Molecular Sciences*, 24(3): 2744.
- Chang Yi, Deng C, Qu Yue, Zheng J, Wan W, Yang S. (2012). The Effect of PRP on Proliferation of Human Skin Fibroblasts and Expression of Collagen and Hyaluronic Acid in Vitro. *Journal of Tissue Engineering and Reconstructive Surgery*, 8: 61–64.
- Chen, B., Wen, Y., Wang, H., Polan, M.L. (2003). Differences in estrogen modulation of tissue inhibitor of matrix metalloproteinase-1 and matrix metalloproteinase-1 expression in cultured fibroblasts from continent and incontinent women. *American Journal of Obstetrics and Gynecology*, 189(1):59-65.

- Chen, B.H., Wen, Y., Li, H., Polan, M.L. (2002). Collagen metabolism and turnover in women with stress urinary incontinence and pelvic prolapse. *International Urogynecology Journal*, 13: 80–87.
- Chen, H.Y., Lu, Y., Qi, Y., Bai, W.P., Liao, Q.P.(2014). Relationship between the expressions of mitofusin-2 and procollagen in uterosacral ligament fibroblasts of postmenopausal patients with pelvic organ prolapse. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 174:141-145.
- Chen, Y.-S., Wang, X.-J., Feng, W., Hua, K.-Q. (2017). Advanced glycation end products decrease collagen I levels in fibroblasts from the vaginal wall of patients with POP via the RAGE, MAPK and NF- κ B pathways. *International Journal of Molecular Medicine*, 40(4): 987–998.
- Cho, E.B., Park, G.S., Park, S.S., Jang, Y.J., Kim, K.H., Kim, K.J., *et al.* (2019). Effect of platelet-rich plasma on proliferation and migration in human dermal fibroblasts. *Journal of Cosmetic Dermatology*, 18(4): 1105–1112.
- Cho, J.W., Kim, S.A., Lee, K.S.(2012). Platelet-rich plasma induces increased expression of G1 cell cycle regulators, type I collagen, and matrix metalloproteinase-1 in human skin fibroblasts. *International Journal of Molecular Medicine*, 29(1): 32–36.
- Choukroun, J., Ghanaati, S. (2018). Reduction of relative centrifugation force within injectable platelet-rich-fibrin (PRF) concentrates advances patients' own inflammatory cells, platelets and growth factors: the first introduction to the low speed centrifugation concept. *European Journal of Trauma and Emergency Surgery*, 44: 87–95.
- Clark, G.L., Pokutta-Paskaleva, A.P., Lawrence, D.J., Lindsey, S.H., Desrosiers, L., Knoepf, L.R., *et al.* (2019). Smooth muscle regional contribution to vaginal wall function. *Interface Focus*, 9(4): 20190025.
- Couri, B.M., Lenis, A.T., Borazjani, A., Paraiso, M.F.R., Damaser, M.S. (2012). Animal models of female pelvic organ prolapse: Lessons learned. *Expert Review of Obstetrics & Gynecology*, 7(3): 249–260.
- Dawood, A.S., Salem, H.A. (2018). Current clinical applications of platelet-rich plasma in various gynecological disorders: An appraisal of theory and practice. *Clinical and Experimental Reproductive Medicine*, 45(2): 67–74.
- de Landsheere, L., Blacher, S., Munaut, C., Nusgens, B., Rubod, C., Noel, A., *et al.* (2014). Changes in elastin density in different locations of the vaginal wall in women with pelvic organ prolapse. *International Urogynecology Journal*, 25:1673-1681.
- de Landsheere, L., Brieu, M., Blacher, S., Munaut, C., Nusgens, B., Rubod, C., *et al.* (2016). Elastin density: Link between histological and biomechanical properties of vaginal tissue in women with pelvic organ prolapse?. *International Urogynecology Journal*, 27: 629–635.
- DeLancey, J.O.L.(2016). What's new in the functional anatomy of pelvic organ prolapse? *Current Opinion in Obstetrics and Gynecology*, 28(5): 420–429.
- DeLancey, J.O.L.(1993). Pelvic organ prolapse: Clinical management and scientific foundations. *Clinical Obstetrics and Gynecology*, 36(4):895-896.
- DeLancey, J.O.L.(1992). Anatomic aspects of vaginal eversion after hysterectomy. *American Journal of Obstetrics and Gynecology*, 166(6): 1717–1728.

- Deng, Z.-M., Dai, F.-F., Yuan, M.-Q., Yang, D.-Y., Zheng, Y.-J., Cheng, Y.-X. (2021). Advances in molecular mechanisms of pelvic organ prolapse (Review). *Experimental and Therapeutic Medicine*, 22(3): 1-7.
- Dhillon, R.S., Schwarz, E.M., Maloney, M.D.(2012). Platelet-rich plasma therapy - future or trend?. *Arthritis Research & Therapy*, 14(4): 1–10.
- Dohan, D.M., Choukroun, J., Diss, A., Dohan, S.L., Dohan, A.J.J., Mouhyi, J., *et al.* (2006). Platelet-rich fibrin (PRF): A second-generation platelet concentrate. Part II: Platelet-related biologic features. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 101(3): e45–e50.
- Dohan Ehrenfest, D.M., Andia, I., Zumstein, M.A., Zhang, C.Q., Pinto, N.R., Bielecki, T. (2014). Classification of platelet concentrates (Platelet-Rich Plasma-PRP, platelet-rich fibrin-PRF) for topical and infiltrative use in orthopedic and sports medicine: *Current consensus, clinical implications and perspectives. Muscles, Ligaments and Tendons Journal*, 4(1):3.
- Dohan Ehrenfest, D.M., de Peppo, G.M., Doglioli, P., Sammartino, G. (2009). Slow release of growth factors and thrombospondin-1 in Choukroun's platelet-rich fibrin (PRF): A gold standard to achieve for all surgical platelet concentrates technologies. *Growth Factors*, 27(1): 63–69.
- dos Santos, R.G., Santos, G.S., Alkass, N., Chiesa, T.L., Azzini, G.O., da Fonseca, L.F., *et al.* (2021). The regenerative mechanisms of platelet-rich plasma: A review. *Cytokine*, 144:155560.
- Dviri, M., Leron, E., Dreier, J., Mazor, M., Shaco-Levy, R. (2011). Increased matrix metalloproteinases-1,-9 in the uterosacral ligaments and vaginal tissue from women with pelvic organ prolapse. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 156(1):113-117.
- Einarsson, J.I., Jonsdottir, K., Mandle, R. (2009). Use of autologous platelet gel in female pelvic organ prolapse surgery: a feasibility study. *Journal of Minimally Invasive Gynecology*, 16(2): 204–207.
- Elbiss, H.M., Osman, N., Hammad, F.T.(2015). Prevalence, risk factors and severity of symptoms of pelvic organ prolapse among Emirati women. *BMC Urology*, 15: 1–5.
- El-Sharkawy, H., Kantarci, A., Dedy, J., Hasturk, H., Liu, H., Alshahat, M., *et al.* (2007). Platelet-Rich Plasma: Growth Factors and Pro- and Anti-Inflammatory Properties. *Journal of Periodontology*, 78(4):661-669.
- Eming, S., Brachvogel, B., Odorisio, T., Koch, M. (2007). Regulation of angiogenesis: Wound healing as a model. *Progress in Histochemistry and Cytochemistry*, 42(3): 115–170.
- Ewies, A.A.A., Al-Azzawi, F., Thompson, J. (2003). Changes in extracellular matrix proteins in the cardinal ligaments of post-menopausal women with or without prolapse: A computerized immunohistomorphometric analysis. *Human Reproduction*, 18(10):2189-2195.
- Falconer, C., Ekman-Ordeberg, G., Ulmsten, U., Westergren-Thorsson, G., Barchan, K., Malmström, A. (1996). Changes in paraurethral connective tissue at menopause are counteracted by estrogen. *Maturitas*, 24(6): 197–204.

- Federer, W.T.(1994). Pooling and Other Designs for Analysing Laboratory Samples More Efficiently. *Journal of the Royal Statistical Society: Series D (The Statiscian)*, 43(3):413-422.
- Feng, Y., Wang, Y., Yan, B., Li, L., Deng, Y. (2016). Matrix Metalloproteinase-1 Expression in Women With and Without Pelvic Organ Prolapse: A Systematic Review and Meta-analysis. *Clinical and Translational Science*, 9(5): 267–273.
- Fengchao C, Mincai C, Tongtong Y, Junjie H, Junge Y. (2017). Study on the effect and mechanism of allogeneic platelet rich plasma on collagen synthesis in wounds. *Chinese Journal of Surgery*, 55(4): 303–307.
- Ferrari, M.M., Rossi, G., Biondi, M.L., Viganò, P., Dell’Utri, C., Meschia, M.(2012). Type I collagen and matrix metalloproteinase 1, 3 and 9 gene polymorphisms in the predisposition to pelvic organ prolapse. *Archives of Gynecology and Obstetrics*, 285: 1581–1586.
- Gabriel, B., Denschlag, D., Göbel, H., Fittkow, C., Werner, M., Gitsch, G., *et al.* (2005). Uterosacral ligament in postmenopausal women with or without pelvic organ prolapse. *International Urogynecology Journal*, 16:475-479.
- Gao, J., Ming-guo, W.A.N.G., Shuai, Y.A.N.G., Xiu-mei, L.I., Shi-mao, Y.A.N.G., Xue, L.I. (2015). Effects of PRF and released three growth factors on migration of rat adipose tissue-derived stem cells. *Shanghai Journal of Stomacology*, 24(6): 667–673.
- Gilbertie, J.M., Long, J.M., Schubert, A.G., Berglund, A.K., Schaer, T.P., Schnabel, L. V. (2018). Pooled Platelet-Rich Plasma Lysate Therapy Increases Synoviocyte Proliferation and Hyaluronic Acid Production While Protecting Chondrocytes From Synoviocyte-Derived Inflammatory Mediators. *Frontiers in Veterinary Science*, 5:150.
- Gong, R., Xia, Z. (2019). Collagen changes in pelvic support tissues in women with pelvic organ prolapse. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 234: 185–189.
- Gonzalez, A.C. de O., Costa, T.F., Andrade, Z. de A., Medrado, A.R.A.P. (2016). Wound healing - A literature review. *Anais Brasileiros de Dermatologia*, 91(5): 614–620.
- Grazul-Bilska, A.T., Johnson, M.L., Bilski, J.J., Redmer, D.A., Reynolds, L.P., Abdullah, A., *et al.* (2003). Wound healing: The role of growth factors. *Drugs Today (Barc)*, 39(10): 787-800.
- Guevara-Alvarez, A., Schmitt, A., Russell, R.P., Imhoff, A.B., Buchmann, S.(2014). Growth factor delivery vehicles for tendon injuries: Mesenchymal stem cells and Platelet Rich Plasma. *Muscles, Ligaments and Tendons Journal*, 4(3) 378–385.
- Guler, Z., Roovers, J.P. (2022). Role of Fibroblasts and Myofibroblasts on the Pathogenesis and Treatment of Pelvic Organ Prolapse. *Biomolecules*, 12(1):94.
- Guo, T., Du, Z., Wang, X.Q., Lang, J.H., Sun, Z.J.(2023). Ovariectomy with simulated vaginal delivery to establish a rat model for pelvic organ prolapse. *Connective Tissue Research*, 64(4): 376–388.
- Hajipour, H., Farzadi, L., Latifi, Z., Keyhanvar, N., Navali, N., Fattahi, A., *et al.* (2021). An update on platelet-rich plasma (PRP) therapy in endometrium and

- ovary related infertilities: clinical and molecular aspects. *Systems Biology in Reproductive Medicine*, 67(3): 177–188.
- Hall, M.-C., Young, D.A., Waters, J.G., Rowan, A.D., Chantry, A., Edwards, D.R., *et al.* (2003). The Comparative Role of Activator Protein 1 and Smad Factors in the Regulation of Timp-1 and MMP-1 Gene Expression by Transforming Growth Factor- β 1. *Journal of Biological Chemistry*, 278(12): 10304–10313.
- Hu, G., Tylzanowski, P., Inoue, H., Veis, A. (1995). Relationships between translation of pro α 1(I) and pro α 2(I) mRNAs during synthesis of the type I procollagen heterotrimer. *Journal of Cellular Biochemistry*, 59(2): 214–234.
- Hu, Y., Wu, R., Li, H., Gu, Y., Wei, W.(2017). Expression and significance of metalloproteinase and collagen in vaginal wall tissues of patients with pelvic organ prolapse. *Annals of Clinical & Laboratory Science*, 47(6): 698–705.
- Huang, L., Zhao, Z., Wen, J., Ling, W., Miao, Y., Wu, J. (2020). Cellular senescence: A pathogenic mechanism of pelvic organ prolapse (Review). *Molecular Medicine Reports*, 22(3): 2155–2162.
- Iwanaga, R., Orlicky, D.J., Arnett, J., Guess, M.K., Hurt, K.J., Connell, K.A.(2016). Comparative histology of mouse, rat, and human pelvic ligaments. *International Urogynecology Journal*, 27: 1697–1704.
- Jackson, S.R., Avery, N.C., Tarlton, J.F., Eckford, S.D., Abrams, P., Bailey, A.J.(1996). Changes in metabolism of collagen in genitourinary prolapse. *The Lancet*, 347(9016): 1658–1661.
- Jamshidzadeh, A., Hosseinabadi, O.K., Heidari, R., Mohammadi-sa, S., Rajabzadeh, S., Mojtaba, S., *et al.* (2016). Wound Healing Activity of a New Formulation From Platelet Lysate. *Trends in Pharmaceutical Sciences*, 2(1): 35–42.
- Jean-Charles, C., Rubod, C., Brieu, M., Boukerrou, M., Fasel, J., Cosson, M. (2010). Biomechanical properties of prolapsed or non-prolapsed vaginal tissue: Impact on genital prolapse surgery. *International Urogynecology Journal*, 21:1535-1538.
- Jelovsek, J.E., Maher, C., Barber, M.D., 2007. Pelvic organ prolapse. *The Lancet*, 369(9566): 1027–1038.
- Johnson, K.E., Wilgus, T.A. (2014). Vascular Endothelial Growth Factor and Angiogenesis in the Regulation of Cutaneous Wound Repair. *Advances in Wound Care*, 3(10): 647–661.
- Jokhio, A.H., Rizvi, R.M., MacArthur, C. (2020). Prevalence of pelvic organ prolapse in women, associated factors and impact on quality of life in rural Pakistan: Population-based study. *BMC Womens Health*, 20: 1–7.
- Kargarpour, Z., Nasirzade, J., Panahipour, L., Miron, R.J., Gruber, R. (2021). Liquid PRF Reduces the Inflammatory Response and Osteoclastogenesis in Murine Macrophages. *Frontiers in Immunology*, 12: 636427.
- Kavalukas, S.L., Barbul, A. (2011). Nutrition and Wound Healing: An Update. *Plastic and Reconstructive Surgery*, 127: 38S-43S.
- Kerkhof, M.H., Hendriks, L., Brölmann, H.A.M. (2009). Changes in connective tissue in patients with pelvic organ prolapse--a review of the current literature. *International Urogynecology Journal*, 20: 461–474.

- Khashukoeva, A.Z., Nosova, L.A., Dmitrashko, T.E., Beslangurova, Z.A., Lyafisheva, D.M., Shokulova, Z.Kh. (2023). The estriol use in the perioperative period by patients with genital prolapse. *Meditinskiy sovet = Medical Council*, 5:156–163.
- Kim, H., Yeom, J.S., Koh, Y., Yeo, J., Kang, K., Kang, Y., *et al.* (2014). Anti-inflammatory effect of platelet-rich plasma on nucleus pulposus cells with response of TNF- α and IL-1. *Journal of Orthopaedic Research*, 32(4): 551–556.
- Kim, K.-C., Kang, S.-S., Lee, J.-S., Park, D.-H., Hyun, J.-W. (2012). Baicalein Attenuates Oxidative Stress-Induced Expression of Matrix Metalloproteinase-1 by Regulating the ERK/JNK/AP-1 Pathway in Human Keratinocytes. *Biomolecules & Therapeutics*, 20(1): 57–61.
- Kim, T., Sridharan, I., Ma, Y., Zhu, B., Chi, N., Kobak, W., *et al.* (2016). Identifying distinct nanoscopic features of native collagen fibrils towards early diagnosis of pelvic organ prolapse. *Nanomedicine: Nanotechnology, Biology and Medicine*, 12(3):667-675.
- Kobayashi, E., Flückiger, L., Fujioka-Kobayashi, M., Sawada, K., Sculean, A., *et al.* (2016). Comparative release of growth factors from PRP, PRF, and advanced-PRF. *Clinical Oral Investigations*, 20: 2353–2360.
- Kobayashi, E., Fujioka-Kobayashi, M., Sculean, A., Chappuis, V., Buser, D., Schaller, B., *et al.* (2017). Effects of platelet rich plasma (PRP) on human gingival fibroblast, osteoblast and periodontal ligament cell behaviour. *BMC Oral Health*, 17: 1-10.
- Körnig, M., Brühlmann, E., Günthert, A., Christmann, C. (2018). Intra-, peri- and postoperative complications in pelvic organ prolapse surgery in geriatric women. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 224: 142–145.
- Leivonen, S.-K., Lazaridis, K., Decock, J., Chantry, A., Edwards, D.R., Kähäri, V.-M. (2013). TGF- β -Elicited Induction of Tissue Inhibitor of Metalloproteinases (TIMP)-3 Expression in Fibroblasts Involves Complex Interplay between Smad3, p38 α , and ERK1/2. *PLoS One*, 8(2): e57474.
- Li, H., You, S., Yang, X., Liu, S., Hu, L. (2022). Injectable recombinant human collagen-derived material with high cell adhesion activity limits adverse remodelling and improves pelvic floor function in pelvic floor dysfunction rats. *Biomaterials Advances*, 134:112715.
- Li, L., Sima, Y., Wang, Y., Zhou, J., Wang, L., Chen, Y. (2020). The cytotoxicity of advanced glycation end products was attenuated by UCMSCs in human vaginal wall fibroblasts by inhibition of an inflammatory response and activation of PI3K/AKT/PTEN. *Bioscience Trends*, 14(4): 263–270.
- Li, Y., Hong, L., Liu, C., Min, J., Hong, S., Hu, M., *et al.* (2018). Effect of puerarin on collagen metabolism of fibroblasts in pelvic tissue of women with pelvic organ prolapse. *Molecular Medicine Reports*, 17(2): 2705–2711.
- Li, Y., Song, P., He, J., Liu, B., Liu, S., Zhou, Y., *et al.* (2022). Comparison Between Injectable Platelet-rich Fibrin and Platelet-rich Plasma in Ameliorating UVA-induced Photoaging in Human Dermal Fibroblasts via the

- Activation of TGF- β /Smad Signaling Pathway. *Photochemistry and Photobiology*, 98(6): 1395–1401
- Lim, V.F., Khoo, J.K., Wong, V., Moore, K.H. (2014). Recent studies of genetic dysfunction in pelvic organ prolapse: The role of collagen defects. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 54(3): 198–205.
- Liu, C., Wang, Y., Li, B.S., Yang, Q., Tang, J.M., Min, J., *et al.* (2017). Role of transforming growth factor β -1 in the pathogenesis of pelvic organ prolapse: A potential therapeutic target. *International journal of molecular medicine*, 40(2):347-356.
- Liu, J., Liu, Z., Tang, Y., Munoz, A., Zhang, Y., Li, X. (2022). Treatment with platelet-rich plasma attenuates proprioceptor abnormalities in a rat model of postpartum stress urinary incontinence. *International Urogynecology Journal*, 33(8): 2159-2167.
- Liu, Xueli, Zhu, B., Li, Y., Liu, Xinyue, Guo, S., Wang, C., Li, S., Wang, D., (2021). *The Role of Vascular Endothelial Growth Factor in Tendon Healing*. *Frontiers in Physiology*, 12:766080.
- Liu, Z., Tang, Y., Liu, J., Shi, R., Houston, M., Munoz, A. *et al.* (2023). Platelet-rich Plasma Promotes Restoration of the Anterior Vaginal Wall for the Treatment of Pelvic Floor Dysfunction in Rats. *Journal of Minimally Invasive Gynecology*, 30(1): 45–51.
- Lubkowska, A., Dolegowska, B., Banfi, G. (2012). Growth factor content in PRP and their applicability in medicine. *Journal of Biological Regulators & Homeostatic Agents*, 26(2 Suppl 1): 3s-22s.
- Ma, Y., Zhang, Y., Chen, J., Li, L., Liu, X., Zhang, L., *et al.* (2021). Mesenchymal stem cell-based bioengineered constructs enhance vaginal repair in ovariectomized rhesus monkeys. *Biomaterials*, 275: 120863.
- Mao, M., Li, Y., Zhang, Y., Kang, J., Zhu, L., 2019. Tissue Composition and Biomechanical Property Changes in the Vaginal Wall of Ovariectomized Young Rats. *Biomed Reserach International*, 2019(1): 8921284.
- Marcu, R.D., Mischianu, D.L.D., Iorga, L., Diaconu, C.C., Surcel, M., Munteanu, A.N., *et al.* (2020). Oxidative Stress: A Possible Trigger for Pelvic Organ Prolapse. *Journal of Immunology Research*, 2020(1):3791934.
- Martínez, C.E., Smith, P.C., Palma Alvarado, V.A. (2015). The influence of platelet-derived products on angiogenesis and tissue repair: a concise update. *Frontiers in Physiology*, 6:290.
- Masoudi, E.A., Ribas, J., Kaushik, G., Leijten, J., Khademhosseini, A. (2016). Platelet-Rich Blood Derivatives for Stem Cell-Based Tissue Engineering and Regeneration. *Current Stem Cell Reports*, 2: 33–42.
- Meidyawati, R., Suprastiwi, E. (2018). The Ability of Lysate-PRF Induces Proliferation of Fibroblast Cells in Endodontic Regenerative Therapy. *Open Journal of Stomatology*, 8(5): 182–187.
- Mihaylova, Z., Mitev, V., Stanimirov, P., Isaeva, A., Gateva, N., Ishkitiev, N. (2017). Use of platelet concentrates in oral and maxillofacial surgery: an overview. *Acta Odontologica Scandinavica*, 75(1):1–11.
- Min, J., Li, B., Liu, C., Guo, W., Hong, S., Tang, J., *et al.* (2017). Extracellular matrix metabolism disorder induced by mechanical strain on human

- parametrial ligament fibroblasts. *Molecular Medicine Reports*, 15(5):3278-3284.
- Miron, R.J., Chai, J., Zhang, P., Li, Y., Wang, Y., Mourão, C.F. *et al.* (2020). A novel method for harvesting concentrated platelet-rich fibrin (C-PRF) with a 10-fold increase in platelet and leukocyte yields. *Clinical Oral Investigations*, 24: 2819–2828.
- Mittal, R., Patel, A.P., Debs, L.H., Nguyen, D., Patel, K., Grati, M., *et al.* (2016). Intricate Functions of Matrix Metalloproteinases in Physiological and Pathological Conditions. *Journal of Cellular Physiology*, 231(12): 2599–2621.
- Moalli, P.A., Howden, N.S., Lowder, J.L., Navarro, J., Debes, K.M., Abramowitch, S.D., *et al.* (2005). A rat model to study the structural properties of the vagina and its supportive tissues. *American Journal of Obstetrics and Gynecology*, 192(1): 80–88.
- Moalli, P.A., Shand, S.H., Zyczynski, H.M., Gordy, S.C., Meyn, L.A. (2005). Remodeling of vaginal connective tissue in patients with prolapse. *Obstetrics and Gynecology*, 106(5 Part 1): 953–963.
- Moalli, P.A., Talarico, L.C., Sung, V.W., Klingensmith, W.L., Shand, S.H., Meyn, L.A., *et al.* (2004). Impact of menopause on collagen subtypes in the arcus tendineous fasciae pelvis. *American Journal of Obstetrics and Gynecology*, 190(3):620-627.
- Mocan-Hognogi, R.F., Costin, N., Malutan, A., Ciortea, R., Trif, I.A., Nagy, A. *et al.* (2016). Histological changes in the vulva and vagina from ovariectomised rats undergoing oestrogen treatment. *Folia Morphologica*, 75: 467–473.
- Moretti, L., Stalfort, J., Barker, T.H., Ababayehu, D. (2022). The interplay of fibroblasts, the extracellular matrix, and inflammation in scar formation. *Journal of Biological Chemistry*, 298: 2.
- Mori da Cunha, M.G.M.C., Mackova, K., Hympanova, L.H., Bortolini, M.A.T., Deprest, J. (2021). Animal models for pelvic organ prolapse: systematic review. *International Urogynecology Journal*, 32: 1331–1344.
- Mott, J.D., Werb, Z. (2004). Regulation of matrix biology by matrix metalloproteinases. *Current Opinion Cell Biology*, 16(5):558-564.
- Nigdelioglu, R., Hamanaka, R.B., Meliton, A.Y., O’Leary, E., Witt, L.J., Cho, T. *et al.* (2016). Transforming Growth Factor (TGF)- β promotes de novo serine synthesis for collagen production. *Journal of Biological Chemistry*, 291(53):27239-27251.
- Nikolopoulos, K.I., Pergialiotis, V., Perrea, D., Doumouchtsis, S.K. (2016). Restoration of the pubourethral ligament with platelet rich plasma for the treatment of stress urinary incontinence. *Medical Hypotheses*, 90: 29–31.
- Niu, K., Chen, X., Lu, Y. (2021). COL3A1 rs1800255 polymorphism is associated with pelvic organ prolapse susceptibility in Caucasian individuals: Evidence from a meta-analysis. *PLoS One*, 16(4): e0250943.
- Noh, K.-C., Liu, X.N., Zhuan, Z., Yang, C.-J., Kim, Y.T., Lee, G.W., *et al.* (2018). Leukocyte-Poor Platelet-Rich Plasma-Derived Growth Factors Enhance Human Fibroblast Proliferation *In Vitro*. *Clinics in Orthopedic Surgery*, 10(2):240-247.

- Norton, P.A. (1993). Pelvic floor disorders: The role of fascia and ligaments. *Clinical Obstetrics and Gynecology*, 36(4): 926-938.
- Nowakowski, Ł., Gałczyński, K., Dybowski, M., Typek, R., Dawidowicz, A., Miotła, P., *et al.* (2023). Effects of topical dehydroepiandrosterone therapy in women after pelvic organ prolapse surgery. *Menopause*, 30(6): 629–634.
- Patel, Nayana H., Patel, Niket H., Patel, M.N., Bhadarka, H.K., Thakkar, H.R. (2023). Promising Future of PRP Treatment for Ovarian Rejuvenation: An In-House Experience of an IVF Institute. *Fertility & Reproduction*, 5(01): 29–34.
- Pavlovic, V., Ciric, M., Jovanovic, V., Stojanovic, P. (2021). Platelet - rich fibrin : Basics of biological actions and protocol modifications. *Open Medicine*, 16(1):446-454.
- Phillips, C.H., Anthony, F., Benyon, C., Monga, A.K. (2006). Collagen metabolism in the uterosacral ligaments and vaginal skin of women with uterine prolapse. *BJOG: An International Journal of Obstetrics & Gynecology*, 113(1):39-46.
- Porsch, H., Mehić, M., Olofsson, B., Heldin, P., Heldin, C.-H. (2014). Platelet-derived Growth Factor β -Receptor, Transforming Growth Factor β Type I Receptor, and CD44 Protein Modulate Each Other's Signaling and Stability. *Journal of Biological Chemistry*, 289(28): 19747–19757.
- Prodromidou, A., Grigoriadis, T., Athanasiou, S. (2022). Platelet rich plasma for the management of urogynecological disorders: the current evidence. *Current Opinion in Obstetrics and Gynecology*, 34(6): 396–401.
- Prodromidou, A., Zacharakis, D., Athanasiou, S. (2021). The Emerging Role on the Use of Platelet-Rich Plasma Products in the Management of Urogynaecological Disorders. *Surgical Innovation*, 29(1):80-87.
- Provenzano, P.P., Alejandro-Osorio, A.L., Grorud, K.W., Martinez, D.A., Vailas, A.C., Grindeland, R.E., *et al.* (2007). Systemic administration of IGF-I enhances healing in collagenous extracellular matrices: Evaluation of loaded and unloaded ligaments. *BMC Physiology*, 7: 1-17.
- Putra, I.G.M., Megadhana, I.W., Suwiyoga, K., Junizaf, H., Santoso, B.I.(2016). Prevalence of Urinary Incontinence in Women with Pelvic Organ Prolapse at Sanglah Hospital Denpasar, Bali-Indonesia. *Bali Medical Journal*, 5(1): 125-128.
- Radiono, S., Wirohadidjojo, Y.W., Budiyanto, A. (2016). The Effect of PRF on Serum Starved Human Dermal Fibroblast. *Journal of the Medical Sciences (Berkala Ilmu Kedokteran)*, 48:110–118.
- Rahman, S., Sutedia, E., Ayu, O., Amirsyah, M., (2022). The Effect of Platelet-Rich Plasma on Type I Collagen Production, VEGF Expression, and Neovascularization after Femoral Bone Implants: A Study on Rat Models. *Orthopedic Research and Reviews*, 14: 207–214.
- Reay Jones, N.H.J., Healy, J.C., King, L.J., Saini, S., Shousha, S., Allen-Merish, T.G. (2003). Pelvic connective tissue resilience decreases with vaginal delivery, menopause and uterine prolapse. *Journal of British Surgery*, 90(4):466-472.
- Ridiandries, A., Tan, J., Bursill, C. (2018). The Role of Chemokines in Wound Healing. *International Journal of Molecular Sciences*, 19(10): 3217.

- Rizal, D.M., Puspitasari, I., Yuliandari, A., (2020). Protective effect of PRP against testicular oxidative stress on D-galactose induced male rats. *AIP Conference Proceedings*, 2260(1). AIP Publishing.
- Ruiz-Zapata, A.M., Heinz, A., Kerkhof, M.H., Rijt, C. van de W., Schmelzer, C.E.H., *et al.* (2020). Extracellular Matrix Stiffness and Composition Regulate the Myofibroblast Differentiation of Vaginal Fibroblasts. *International Journal of Molecular Sciences*, 21(13): 4762.
- Ruiz-Zapata, A.M., Kerkhof, M.H., Ghazanfari, S., Zandieh-Doulabi, B., Stoop, R., Smit, T.H., *et al.* (2016). Vaginal Fibroblastic Cells from Women with Pelvic Organ Prolapse Produce Matrices with Increased Stiffness and Collagen Content. *Scientific Reports*, 6(1):1-9.
- Salman, M.C., Ozyuncu, O., Sargon, M.F., Kucukali, T., Durukan, T. (2010). Light and electron microscopic evaluation of cardinal ligaments in women with or without uterine prolapse. *International Urogynecology Journal*, 21: 235-239.
- Saluja, H., Dehane, V., Mahindra, U. (2011). Platelet-Rich fibrin: A second generation platelet concentrate and a new friend of oral and maxillofacial surgeons. *Annals of Maxillofacial Surgery*, 1(1): 53-57.
- Santoso, B.I., Fauziah, N.R. (2017). Prevalence and Characteristics of Pelvic Floor Dysfunction in a Tertiary Care Center in Indonesia. *Indonesian Journal of Obstetrics and Gynecology*, 168-172.
- Santoso, B.P., Putra, I.G.M., Megadhana, I.W., Mahayasa, P.D., Suardika, A., Sanjaya, I.N.H. (2022). The Matrix Metalloproteinase-1 Gene Polymorphisms as Risk Factor of Pelvic Organ Prolapse in Balinese Woman. *European Journal of Medical and Health Sciences*, 4(5): 1–7.
- Saputra, A.N.D., Rizal, D.M., Ayuandari, S., Pangastuti, N. (2022). The difference in collagen type-1 expression in women with and without pelvic organ prolapse: a systematic review and meta-analysis. *International Urogynecology Journal*, 33(7):1803-1812.
- Saraluck, A., Chinthakanan, O., Kijmanawat, A., Aimjirakul, K., Wattanayingcharoenchai, R., Manonai, J. (2024). Autologous platelet rich plasma (A-PRP) combined with pelvic floor muscle training for the treatment of female stress urinary incontinence (SUI): A randomized control clinical trial. *Neurourology and Urodynamics*, 43(2): 342–353.
- Setyadi, S., Kustanto, A., Widiastuti, A. (2023). Life Expectancy in Indonesia: The Role of Health Infrastructure, Political, and Socioeconomic Status. *Iranian Economic Review*, 27(3): 965–1005.
- Shao, Z., Lyu, C., Teng, L., Xie, X., Sun, J., Zou, D., *et al.* (2021). An Injectable Fibrin Scaffold Rich in Growth Factors for Skin Repair. *Biomed Research International*, 2021(1):8094932.
- Shavkatovich, S.H. and Negmadjanov, B.B. (2020). Optimization Of Pelvic Prolaps Surgical Correction Using Its Own Tissues. *The American Journal of Medical Sciences and Pharmaceutical Research*, 2(12):15-19.
- Sharara, F.I., Lelea, L.-L., Rahman, S., Klebanoff, J.S., Moawad, G.N. (2021). A narrative review of platelet-rich plasma (PRP) in reproductive medicine. *Journal of Assisted Reproduction and Genetics*, 38: 1003–1012.

- Shi, R., Hu, W., Zhang, Y., Gao, S., Smith, A.H., Ye, J., *et al.* (2019). Ascorbate inducible N259 glycans on prolyl 4-hydroxylase subunit $\alpha 1$ promote hydroxylation and secretion of type I collagen. *Cellular and Molecular Life Sciences*, 76: 3449–3464.
- Skoczylas, L.C., Turner, L.C., Wang, L., Winger, D.G. and Shepherd, J.P., 2014. Changes in prolapse surgery trends relative to FDA notifications regarding vaginal mesh. *International urogynecology journal*, 25:471-477.
- Sun, M.J., Cheng, Y.S., Sun, R., Cheng, W.L., Liu, C. san. (2016). Changes in mitochondrial DNA copy number and extracellular matrix (ECM) proteins in the uterosacral ligaments of premenopausal women with pelvic organ prolapse. *Taiwanese Journal of Obstetrics and Gynecology*, 55(1):9-15.
- Tian, Z., Li, Q., Wang, X., Sun, Z. (2024). The difference in extracellular matrix metabolism in women with and without pelvic organ prolapse : A systematic review and meta-analysis. *BJOG: An International Journal of Obstetrics & Gynecology*, 131(8): 1029-1041.
- Uría, J.A., Jiménez, M.G., Balbín, M., Freije, J.M.P., López-Otín, C. (1998). Differential Effects of Transforming Growth Factor- β on the Expression of Collagenase-1 and Collagenase-3 in Human Fibroblasts. *Journal of Biological Chemistry*, 273(16): 9769–9777.
- Vali, S., Saso, S., Bracewell Milnes, T., Nicopoullou, J., Thum, M.-Y., Smith, J.R., *et al.* (2023). The Clinical Application of Platelet-Rich Plasma in the Female Reproductive System: A Narrative Review. *Life*, 13(12): 2348.
- Vasin, R.V.V., Filimonov, V.B.F., Mnikhovich, M.V.M., Kaprin, A.D.K., Kostin, A.A.K., Vasina, I.V.V. (2020). Morphologic structure and immunohistochemical analysis of vaginal wall in women with pelvic organ prolapse. *Urologiia*, 6: 12–20.
- Vetuschi, A., Pompili, S., Gallone, A., D’Alfonso, A., Carbone, M.G., Carta, G., *et al.* (2018). Immunolocalization of Advanced Glycation End Products, Mitogen Activated Protein Kinases, and Transforming Growth Factor- β /Smads in Pelvic Organ Prolapse. *Journal of Histochemistry and Cytochemistry*, 66(9): 673-686.
- Vinaya Kumar, R., Shubhashini, N. (2013). Platelet rich fibrin: a new paradigm in periodontal regeneration. *Cell and Tissue Banking*, 14: 453–463.
- Vulić, M., Strinić, T., Buković, D., Tomić, S., Župić, T., Pavić, M., *et al.* (2010). Expression of matrix metalloproteinase-1 in uterosacral ligaments tissue of women with genital prolapse. *Collegium Antropologicum*, 34(4): 1411–1417.
- Vulic, M., Strinic, T., Tomic, S., Capkun, V., Jakus, I.A., Ivica, S. (2011). Difference in expression of collagen type i and matrix metalloproteinase-1 in uterosacral ligaments of women with and without pelvic organ prolapse. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 155(2): 225–228.
- Walker, G.J.A., Gunasekera, P.(2011). Pelvic organ prolapse and incontinence in developing countries: Review of prevalence and risk factors. *International Urogynecology Journal*, 22: 127–135.

- Wang, X., Li, J., Lu, W., Gao, F., Zhang, S., Li, Jiajia.(2024). Therapeutic roles of platelet - rich plasma to restore female reproductive and endocrine dysfunction. *Frontiers in Endocrinology*, 15:1374382.
- Wang, X., Yang, Y., Zhang, Y., Miron, R.J. (2019). Fluid platelet-rich fibrin stimulates greater dermal skin fibroblast cell migration, proliferation, and collagen synthesis when compared to platelet-rich plasma. *Journal of Cosmetic Dermatology*, 18(6):2004-2010.
- Wang, X., Zhang, Y., Choukroun, J., Ghanaati, S., Miron, R. (2017). Behavior of Gingival Fibroblasts on Titanium Implant Surfaces in Combination with either Injectable-PRF or PRP. *International Journal of Molecular Sciences*, 18(2): 331.
- Wang, Xiaoqing, He, R., Nian, S., Xiao, B., Wang, Y., Zhang, L., *et al.* (2022). Treatment of Pelvic Organ Prolapse by the Downregulation of the Expression of Mitofusin 2 in Uterosacral Ligament Tissue via Mesenchymal Stem Cells. *Genes*, 13(5):829.
- Weber, A.M., Walters, M.D., Piedmonte, M.R., Ballard, L.A. (2001). Anterior colporrhaphy: A randomized trial of three surgical techniques. *American Journal of Obstetrics and Gynecology*, 185(6):1299–1306.
- White, L.A., Mitchell, T.I., Brinckerhoff, C.E. (2000). Transforming growth factor β inhibitory element in the rabbit matrix metalloproteinase-1 (collagenase-1) gene functions as a repressor of constitutive transcription. *Biochimica et Biophysica Acta (BBA) - Gene Structure and Expression*, 1490(3): 259–268.
- Whiteside, J.L., Weber, A.M., Meyn, L.A., Walters, M.D. (2004). Risk factors for prolapse recurrence after vaginal repair. *American Journal of Obstetrics and Gynecology*, 191: 1533–1538.
- Wienaldi, L., Bungaran S. (2022). Antioxidant Activity Of Platelet Rich Plasma Wistar Rats With Dpph And Abts Test. *International Journal of Health and Pharmaceutical (IJHP)*, 2(1): 144–147.
- Wieslander, C.K., Rahn, D.D., McIntire, D.D., Acevedo, J.F., Drewes, P.G., Yanagisawa, H., *et al.* (2009). Quantification of pelvic organ prolapse in mice: Vaginal protease activity precedes increased MOPQ scores in fibulin 5 knockout Mice 1. *Biology of Reproduction*, 80(3): 407–414.
- Wirohadidjojo, Y.W., Budiyo, A., Soebono, H. (2016). Platelet-Rich Fibrin Lysate Can Ameliorate Dysfunction of Chronically UVA-Irradiated Human Dermal Fibroblasts. *Yonsei Medical Journal*, 57(5): 1282-1285.
- Wu, H., Zhang, L., He, L., Lin, W., Yu, B., Yu, X., *et al.* (2024). Roles and mechanisms of biomechanical - biochemical coupling in pelvic organ prolapse. *Frontiers in Medicine*, 11:1303044.
- Xian, L.J., Roy Chowdhury, S., Bin Saim, A., Bt Hj Idrus, R. (2015). Concentration-dependent effect of platelet-rich plasma on keratinocyte and fibroblast wound healing. *Cytotherapy*, 17(3): 293–300.
- Yin, Y., Han, Y., Shi, C., Xia, Z.(2020). IGF - 1 regulates the growth of fibroblasts and extracellular matrix deposition in pelvic organ prolapse. *Open Medicine*, 15(1):833-840.

- Yu, W., Wang, J., Yin, J. (2011). Platelet-rich plasma: A promising product for treatment of peripheral nerve regeneration after nerve injury. *International Journal of Neuroscience*, 121(4):176-180.
- Yu, X., He, L., Wang, Y., Wang, L., Yang, Z., Lin, Y. (2022). Local Estrogen Therapy for Pelvic Organ Prolapse in Postmenopausal Women: A Systematic Review and Meta-Analysis. *Iranian Journal of Public Health*, 51(8):1728.
- Yuan, W., Varga, J. (2001). Transforming Growth Factor- β Repression of Matrix Metalloproteinase-1 in Dermal Fibroblasts Involves Smad3. *Journal of Biological Chemistry*, 276(42):38502–38510.
- Zamani, M., Yaghoubi, Y., Movassaghpour, A., Shakouri, K., Mehdizadeh, A., Pishgahi, A., *et al.* (2019). Novel therapeutic approaches in utilizing platelet lysate in regenerative medicine: Are we ready for clinical use?. *Journal of Cellular physiology*, 234(10):17172–17186.
- Zeng, C., Liu, J., Wang, H., Zhou, Y., Wu, J., Yan, G. (2018). Correlation between autophagy and collagen deposition in patients with pelvic organ prolapse. *Urogynecology*, 24(3):213-221.
- Zhao, Y., Xia, Z., Lin, T., Qin, M. (2021). Transforming Growth Factor Beta 1 and p44/42 Expression in Cardinal Ligament Tissues of Patients with Pelvic Organ Prolapse. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, 27:e930433-1.
- Zhou, L., Shangguan, A.J.,Kujawa,S.A.,Bocehneska,K.,Zhang,L.,Zhao,H. (2016). Estrogen and Pelvic Organ Prolapse. *Journal of Molecular and Genetic Medicine*, 10(2):221.
- Zhu, YP., Xie, T., Guo, T., Sun, Z.J., Zhu, L., Lang, JH. (2021). Evaluation of extracellular matrix protein expression and apoptosis in the uterosacral ligaments of patients with or without pelvic organ prolapse. *International Urogynecology Journal*, 32: 2273–2281.