

CROATIAN INTERNATIONAL PUBLICATIONS

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Samija I, Mateša N, Lukač J, Kusić Z. Galectin-3 and CD44v6 as markers for preoperative diagnosis of thyroid cancer by RT-PCR. *Diagn Mol Pathol*. 2011 Dec;20(4):233-41.

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The aim of the study was to determine the diagnostic value of reverse transcriptase polymerase chain reaction (RT-PCR) analysis of galectin-3 and CD44v6 as markers for preoperative diagnosis of malignancy in lesions of the thyroid. RT-PCR analysis of galectin-3 and CD44v6 expression was performed on RNA isolated from fine-needle aspirates of thyroid lesions from 428 patients. The results were evaluated against the postoperative histopathological diagnosis or definitive cytological diagnosis in cases of nodular goiter and Hashimoto thyroiditis. A total of 57 (13%) samples were inadequate for RT-PCR. Galectin-3 and CD44v6 were positive in 167 (45%) and 158 (43%) out of 371 adequate samples, respectively. Galectin-3 and CD44v6 were positive in 56 (86%) and 54 (83%) out of 65 papillary carcinomas, in 16 (29%) and 18 (32%) out of 56 Hashimoto's thyroiditis, in 61 (34%) and 52 (29%) out of 181 nodular goiters, in 23 (43%) and 23 (43%) out of 53 follicular adenomas, in 3 (100%) and 3 (100%) out of 3 follicular carcinomas, and in 8 (62%) and 8 (62%) out of 13 Hurthle cell adenomas, respectively. Specificity, sensitivity, and positive and negative predictive values in discriminating between malignant and benign thyroid nodules were 64, 87, and 35 and 96% for galectin-3; 67, 84, and 36 and 95% for CD44v6; and 79, 82, and 47 and 95% for the analysis of both markers (considered positive only if both galectin-3 and CD44v6 were positive), respectively. Owing to relatively low specificity, the clinical value of galectin-3 and CD44v6 analysis by RT-PCR as a marker for preoperative diagnosis of malignancy in thyroid lesions is limited.

Kristić I, Lukenda J. Radial artery spasm during transradial coronary procedures. *J Invasive Cardiol*. 2011 Dec;23(12):527-31.

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Although transradial access (TRA) for coronary procedures has many advantages over the transfemoral approach, it's still not the dominant route used in coronary interventions. Radial artery spasm (RAS) is an important limitation of TRA. We performed a search of published literature to estimate the prevalence and possible risk factors of RAS in patients undergoing transradial coronary procedure. Nineteen published papers including 7197 patients were identified as relevant; reported incidence of RAS was 14.7% altogether. It varies depending upon the criteria used, on applied premedications, and on sheath or catheter selection. Use of hydrophilic coated sheaths and catheters can reduce the incidence of RAS to 1%, while intra-arterial application of verapamil (1.25-5 mg) and nitroglycerin (100-200 µg) can reduce the incidence of RAS up to 3.8%. We concluded that RAS is still problematic in transradial access, and that besides hydrophilic materials, the use of intra-arterial vasodilators remains mandatory in RAS prevention. However, the optimal spasmolytic cocktail is yet to be confirmed by valid spasm criteria.

Grcevic D, Pejda S, Matthews BG, Repic D, Wang L, Li H, Kronenberg MS, Jiang X, Maye P, Adams DJ, Rowe DW, Aguila HL, Kalajzic I. In vivo fate mapping identifies mesenchymal progenitor cells. *Stem Cells*. 2012 Feb;30(2):187-96.

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Adult mesenchymal progenitor cells have enormous potential for use in regenerative medicine. However, the true identity of the progenitors in vivo and their progeny has not been precisely defined. We hypothesize that cells expressing a smooth muscle α -actin promoter (α SMA)-directed Cre transgene represent mesenchymal progenitors of adult bone tissue. By combining complementary colors in combination with transgenes activating at ma-

ture stages of the lineage, we characterized the phenotype and confirmed the ability of isolated α SMA(+) cells to progress from a progenitor to fully mature state. In vivo lineage tracing experiments using a new bone formation model confirmed the osteogenic phenotype of α SMA(+) cells. In vitro analysis of the in vivo-labeled SMA9(+) cells supported their differentiation potential into mesenchymal lineages. Using a fracture-healing model, α SMA9(+) cells served as a pool of fibrocartilage and skeletal progenitors. Confirmation of the transition of α SMA9(+) progenitor cells to mature osteoblasts during fracture healing was assessed by activation of bone-specific Col2.3eml transgene. Our findings provide a novel in vivo identification of defined population of mesenchymal progenitor cells with active role in bone remodeling and regeneration.

Mitrovic M, Arapovic J, Jordan S, Fodil-Cornu N, Ebert S, Vidal SM, Krmpotic A, Reddehase MJ, Jonjic S. The NK Cell Response to Mouse Cytomegalovirus Infection Affects the Level and Kinetics of the Early CD8+ T-Cell Response. J Virol. 2012 Feb;86(4):2165-75.

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Natural killer (NK) cells and CD8(+) T cells play a prominent role in the clearance of mouse cytomegalovirus (MCMV) infection. The role of NK cells in modulating the CD8(+) T-cell response to MCMV infection is still the subject of intensive research. For analyzing the impact of NK cells on mounting of a CD8(+) T-cell response and the contribution of these cells to virus control during the first days postinfection (p.i.), we used C57BL/6 mice in which NK cells are specifically activated through the Ly49H receptor engaged by the MCMV-encoded ligand m157. Our results indicate that the requirement for CD8(+) T cells in early MCMV control inversely correlates with the engagement of Ly49H. While depletion of CD8(+) T cells has only a minor effect on the early control of wild-type MCMV, CD8(+) T cells are essential in the control of Δ m157 virus. The frequencies of virus epitope-specific CD8(+) T cells and their activation status were higher in mice infected with Δ m157 virus. In addition, these mice showed elevated levels of alpha interferon (IFN- α) and several other proinflammatory cytokines as early as 1.5 days p.i. Although the numbers of conventional

dendritic cells (cDCs) were reduced later during infection, particularly in Δ m157-infected mice, they were not significantly affected at the peak of the cytokine response. Altogether, we concluded that increased antigen load, preservation of early cDCs' function, and higher levels of innate cytokines collectively account for an enhanced CD8(+) T-cell response in C57BL/6 mice infected with a virus unable to activate NK cells via the Ly49H-m157 interaction.

Sikiric P, Seiwerth S, Rucman R, Turkovic B, Rokotov DS, Brcic L, Sever M, Klicek R, Radic B, Drmic D, Ilic S, Kolenc D, Stambolija V, Zoricic Z, Vrcic H, Sebecic B. Focus on Ulcerative Colitis: Stable Gastric Pentadecapeptide BPC 157. Curr Med Chem. 2012 Jan 1;19(1):126-32.

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Stable gastric pentadecapeptide BPC 157 (GEPPPGKPADD-AGLV, M.W. 1419) may be the new drug stable in human gastric juice, effective both in the upper and lower GI tract, and free of side effects. BPC 157, in addition to an antiulcer effect efficient in therapy of inflammatory bowel disease (IBD) (PL 14736) so far only tested in clinical phase II, has a very safe profile, and exhibited a particular wound healing effect. It also has shown to interact with the NO-system, providing endothelium protection and angiogenic effect, even in severely impaired conditions (i.e., it stimulated expression of early growth response 1 gene responsible for cytokine and growth factor generation and early extracellular matrix (collagen) formation (but also its repressor nerve growth factor 1- A binding protein-2)), important to counteract severe complications of advanced and poorly controlled IBD. Hopefully, the lessons from animal studies, particularly advanced intestinal anastomosis healing, reversed short bowel syndrome and fistula healing indicate BPC 157's high significance in further IBD therapy. Also, this supportive evidence (i.e., no toxic effect, limit test negative, LD1 not achieved, no side effect in trials) may counteract the problems commonly exercised in the use of peptidergic agents, particularly those used on a long-term basis.