

---

**\*Vucelić B, Rex D, \*Pulanić R, Pfefer J, \*Hrstić I, Levin B, Halpern Z, Arber N. The Aer-O-Scope: proof of concept of a pneumatic, skill-independent, self-propelling, self-navigating colonoscope. Gastroenterology. 2006;130:672-7.**

*\*Zagreb University Hospital Center, Zagreb, Croatia*

The aim of this study was to evaluate the extent of colonic intubation by using a novel self-propelled, self-navigating endoscope (the Aer-O-Scope; GI View Ltd, Ramat Gan, Israel). Twelve young healthy volunteers underwent complete bowel preparation followed by a nonsedated examination using the novel device. Each examination was followed by a standard colonoscopy for safety evaluation. Cecal intubation was confirmed by endoscopic landmarks and fluoroscopy. In 10 out of 12 subjects (83%) the cecum was successfully reached, whereas in 2 cases the Aer-O-Scope advanced to the hepatic flexure. The time to complete advancement to cecum averaged  $14.0 \pm 7$  minutes, and the driving pressures averaged  $34 \pm 2.3$  milibar. Two subjects requested analgesics during the procedures (in both cases the cecum was reached). Four subjects experienced sweating and a bloating sensation that resolved spontaneously. All subjects were followed up to 48 hours and then for 30 days postprocedure, and no complications were observed. In a preliminary pilot feasibility study of this new instrument, the Aer-O-Scope effectively intubated all or most of the colon. Further clinical studies are warranted.

---

**Thurman JM, Royer PA, \*Ljubanović D, Dursun B, Lenderink AM, Edelstein CL, Holers VM. Treatment with an inhibitory monoclonal antibody to mouse factor B protects mice from induction of apoptosis and renal ischemia/reperfusion injury. J Am Soc Nephrol. 2006;17:707-15.**

*\*Department of Pathology, Dubrava University Hospital, Zagreb, Croatia*

The ability of an inhibitory mAb to mouse factor B, a necessary component of the alternative pathway, to protect mice from ischemic acute renal failure was tested. Treatment with the mAb prevented the deposition of C3b on the tubular epithelium and the generation of systemic C3a after renal I/R. Treated mice had significantly lower increases in serum urea nitrogen and developed significantly less morphologic injury of the kidney after I/R. For gaining insight into potential mechanisms of protection, the activity of caspases within the kidney also was measured, and it was found that caspases-2, -3, and -9 increased in a complement-dependent manner after renal I/R. Apoptotic cells were detected by terminal deoxynucleotidyl transferase catalyzed labeling of DNA fragments, and mice in which the alternative pathway was inhibited demonstrated significantly less apoptosis than control mice. Thus, use of an inhibitory mAb to mouse factor B effectively prevented activation of complement in the kidney after I/R and protected the mice from necrotic and apoptotic injury of the tubules.

---

**\*Jakšić B, Martinelli G, Perez-Oteyza J, Hartman CS, Leonard LB, Tack KJ. Efficacy and safety of linezolid compared with vancomycin in a randomized, double-blind study of febrile neutropenic patients with cancer. Clin Infect Dis. 2006;42:597-607.**

*\*Department of Medicine, Merkur University Hospital, Zagreb, Croatia*

To compare the safety and efficacy of linezolid and vancomycin in febrile, neutropenic patients with cancer, the authors conducted a double-blind, multicenter equivalence study. Eligible patients with proven or suspected infection

due to a gram-positive pathogen were randomized to receive linezolid or vancomycin. Clinical success rates 7 days after completion of therapy (primary end point) were equivalent between groups in the intent-to-treat (ITT) analysis (linezolid, 219 [87.3%] of 251 patients; vancomycin, 202 [85.2%] of 237 patients; 95% CI, -4.1 to 8.1;  $P=$ .52), modified ITT analysis, clinically evaluable analysis, and microbiologically evaluable analysis, as well as between subsets analyzed by malignancy and infection type. Mean time to defervescence was shorter for linezolid than vancomycin in the modified ITT (6.6 vs. 8.5 days;  $P=$ .04) and microbiologically evaluable subsets (5.9 vs. 9.1 days;  $P=$ .01), although post hoc analyses revealed delayed recovery of absolute neutrophil counts for linezolid in these subsets ( $P<$ .05). There were no between-group differences in microbiologic success rates in the modified ITT subset (41 [57.7%] of 71 patients vs. 29 [50.0%] of 58 patients;  $P=$ .38) and microbiologically evaluable subsets, as well as in mortality rates in the ITT subset (17 [5.6%] of 304 patients vs. 23 [7.6%] of 301 patients;  $P=$ .31) and all subsets. Distribution of adverse events, was similar between groups, except that linezolid was associated with fewer drug-related adverse events (52 [17.2%] of 303 patients vs. 72 [24.0%] of 300 patients;  $P=$ .04) and fewer cases of drug-related renal failure (1 [0.3%] of 303 patients vs. 7 [2.3%] of patients;  $P=$ .04). Linezolid demonstrated efficacy and similar safety outcomes equivalent to those for vancomycin in febrile neutropenic patients with cancer.

---

**Šantak M, Košutić-Gulija T, Tešović G, Ljubin-Sternak S, Gjenero-Margan I, Betica-Radić L, Forčić D. Mumps virus strains isolated in Croatia in 1998 and 2005: Genotyping and putative antigenic relatedness to vaccine strains. *J Med Virol.* 2006;78:638-43.**

*Molecular Biomedicine Unit, Institute of Immunology, Inc., Zagreb, Croatia*

Two mumps virus strains 9218/Zg98 and Du/CRO05 were isolated in two locations in Croatia in 1998 and 2005, respectively. Genetic characterization of these temporally distinct mumps virus isolates was carried out in order to determine their genotype and putative antigenic relatedness to mumps virus vaccine strains. Sequence analysis of the small hydrophobic (SH) gene revealed that isolate 9218/Zg98 shows less than 95% of similarity to any refer-

ence strain, thus representing a potential reference strain for a new genotype. Isolate Du/CRO05 clearly belongs to genotype G with the 97% of homology to the reference strain Glouc1/UK96. When compared to each other, the two Croatian strains have extremely low level of homology of only 89% indicating no relatedness between them. Putative antigenic properties of the HN protein of these two isolates were compared to different vaccine strains. The results reveal a higher level of homology of antigenic determinants to non-A genotype vaccine strains than to A genotype vaccine strain.

---

**\*Gagro A, \*Servis D, \*Cepika AM, Toellner KM, Grafton G, Taylor DR, Branica S, Gordon J. Type I cytokine profiles of human naive and memory B lymphocytes: a potential for memory cells to impact polarization. *Immunology.* 2006;118:66-77.**

*\*Institute of Immunology, Zagreb, Croatia*

B cells bifurcating along 'type 1' or 'type 2' pathways under the influence of polarizing cytokines can, in turn, influence the direction of an immune response. Here, the authors compare the capacity of human B cells residing within naive and memory compartments to participate in type 1 polarizing responses. B-cell receptor (BCR) engagement provided the main signal for interleukin (IL)-12Rbeta1 expression in the two subsets: this was potentiated by CD154 together with interferon-gamma (IFN-gamma) but inhibited by IL-12. IL-12Rbeta2 could be induced on a minority of B cells by the same signals, and also by IFN-gamma alone. WSX-1, a receptor for IL-27, was expressed in both subsets with no evidence for its regulation by the signals studied. While neither subset was capable of secreting much IL-12 p70, memory B cells could produce a small amount of IL-12 p40 on CD40 ligation. Memory B cells also, exclusively, expressed IL-23 p19 mRNA on BCR triggering. Importantly, products of appropriately stimulated memory--but not naive--B cells were shown to promote the synthesis of IFN-gamma in uncommitted T-helper cells. The data indicate an equal capacity for naive and memory B cells to respond within a type 1 polarizing environment. Although poorly equipped for initiating type 1 responses, B cells--by virtue of the memory subset--reveal a capacity for their maintenance and amplification following T-dependent signalling.

**Cacev T, Jokić M, Spaventi R, Pavelić K, Kapitanović S. Loss of heterozygosity testing using real-time PCR analysis of single nucleotide polymorphisms. J Cancer Res Clin Oncol. 2006;132:200-4.**

*Division of Molecular Medicine, Ruđer Bošković Institute, Zagreb, Croatia*

The aim of this study is to evaluate the usefulness of real-time PCR SNP analysis as a new technique in the loss of heterozygosity (LOH) analysis at the E-cadherin gene locus in sporadic colon cancer. One-hundred cases of human sporadic colon cancer and corresponding normal tissue samples were analyzed using two flanking polymorphic markers commonly used in the LOH analysis at the E-cadherin gene locus by conventional VNTR-LOH analysis. Two intragenic E-cadherin SNP markers were analyzed using real-time PCR SNP analysis. LOH (17.6%) was detected using flanking markers, however, no LOH was detected when the intragenic E-cadherin SNP markers were introduced in the study. Since these markers are intragenic they more accurately represent the status of the E-cadherin gene than the previously used flanking markers. In conclusion, real-time PCR SNP analysis was found to be more accurate, faster, simpler, and a more high-throughput method than the conventional VNTR-LOH analysis.

**Grgić O, Matijević R, Vasilj O. Qualitative glandular cervical score as a potential new sonomorphological parameter in screening for preterm delivery. Ultrasound Med Biol. 2006;32:333-8.**

*Holy Ghost Hospital and Zagreb University School of Medicine, Zagreb, Croatia*

This study compared diagnostic accuracy of sonographic assessment of cervical length (CL) and qualitative glandular cervical score (QGCS), in the second trimester regarding the prediction of preterm delivery (PTD) in the low-risk population. Cervical length  $<$  or  $=$  fifth percentile for our population was defined as shortened. The parameters evaluated in QGCS were: cervical mucus area and deepest invasion of cervical glands, and score  $<$  or  $=$  fifth percentile for our population was defined as low. Shortened CL was found in 6.1% whereas the low QGCS was found in 5.5%. The incidence of PTD  $<$  34 completed wk was 2.1%, and between 34 to 37 wk it was 3%. Low

QGCS in comparison with shortened CL had twofold higher likelihood ratio (LR) (23; 95% CI [12 to 43] versus 11; 95% CI [5 to 25]) for PTD  $<$  34 completed wk and fourfold higher LR (12; 95% CI [5 to 28] versus 3; 95% CI [1 to 13]) for PTD between 34 to 37 wk. Low QGCS has the same if not better accuracy in comparison with shortened CL regarding the prediction of PTD in the low-risk population.

**\*Borović S, Tirzitis G, Tirzite D, Cipak A, Khoschrorur GA, Waeg G, Tatzber F, et al. N. Bioactive 1,4-dihydroisonicotinic acid derivatives prevent oxidative damage of liver cells. Eur J Pharmacol. 2006;537:12-9.**

*\*Division of Molecular Medicine, Ruđer Bošković Institute, Zagreb, Croatia*

1,4-Dihydroisonicotinic acid derivatives (1,4-DHINA) are compounds closely related to derivatives of 1,4-dihydropyridine, a well-known calcium channel antagonists. 1,4-DHINA we used were derived from a well-known antioxidant Diludin. This study was performed to obtain data on antioxidant and bioprotective activities of: 2,6-dimethyl-3,5-diethoxycarbonyl-1,4-dihydroisonicotinic acid (Ia); sodium 2-(2,6-dimethyl-3,5-diethoxycarbonyl-1,4-dihydropyridine-4-carboxamido)glutamate (Ib) and sodium 2-(2,6-dimethyl-3,5-diethoxycarbonyl-1,4-dihydropyridine-4-carboxamido)ethane-sulfate (Ic). 1,4-DHINA's activities were studied in comparison to Trolox by: N,N-Diphenyl-N'-picrylhydrazyl (DPPH), deoxyribose degradation, 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) diammonium salt (ABTS) radical scavenging and antioxidative capacity assays; copper-induced lipid peroxidation of cultured rat liver cells (malondialdehyde determination by high performance liquid chromatography and 4-hydroxynonenal-protein conjugates by dot-blot); (3)H-thymidine incorporation and trypan blue assay for liver cells growth and viability. In all assays used Ia was the most potent antioxidant. Ia was also a potent antioxidant at non-toxic concentrations for liver cell cultures. It completely abolished, while Ic only slightly decreased copper-induced lipid peroxidation of liver cells. Thus, antioxidant capacities are important activity principle of Ia, which was even superior to Trolox in the cell cultures used, while activity principles of Ic and Ib remain yet to be determined.