JACKSON CARDIOVASCULAR-RENAL MEETING 2008
CENTER FOR EXCELLENCE IN CARDIOVASCULAR-RENAL RESEARCH
THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER
JACKSON, MISSISSIPPI

ABSTRACT FORM
Deadline for Receipt: **August 15, 2008**

From Guyton's graphic diagram to multimedia simulators for teaching physiology. J. Kofranek, J. Rusz, Charles University, 1st.Medical Faculty, Dept. of Pathophysiology, Prague, Czech Republic.

   Thirty six years ago, A.C. Guyton et al. published a description of a large model of physiological regulation of circulation in a form of a graphic schematic diagram. We decided to revive the old model by means of a modern software simulation development tool – Simulink. Simulink diagrams are very similar to the old Guyton's notation used in the original model. We tried to keep the resemblance as it was in the original Guyton's pictorial diagram – the layout, the disposition of wires and the quantity are the same. However, contrary to the old system analysis diagram, the new one is also a functional simulation model by itself, giving the user a possibility to study behaviour of all the variables in time. Furthermore, obvious and less obvious errors and omissions in the original scheme were corrected in the new Simulink implementation (it can be downloaded from www.physiome.cz/guyton). We use Simulink implementation of Guyton's model as an educational tool to teach physiology to undergraduate and postgraduate students at the Czech Technical University.

   This structure of Simulink diagram is however, too abstract for medical students. It is ideal, if teaching models for medical students have the form of schematic pictures to which they are accustomed from textbooks of physiology. Therefore we are developing the web-based atlas of physiology and pathophysiology (www.physiome.cz/atlas) as an interactive multimedia web-based educational application that facilitates the process of physiological system functions interpretation. The Atlas is created as a joined work of a creative multidisciplinary team of professionals of various fields – physiologists, programmers, system engineers and artists (www.physiome.cz/atlas/info/01EN/index.htm). Atlas is open and free accessible application. All educational texts, interactive animation and simulation models including the source code and developing tools are for free to all who are interested. Any form of cooperation is welcome. The suggestions that Guyton et al. sparked, thirty six years ago, by his legendary article (the concept of integrative physiology, the creation of large-scale models of physiological subsystems interconnected in an integrative way, and an effort to graphically depict the structure of physiological regulation relations), nowadays return in a new form and with new possibilities.

Please submit Abstract on this form in MS Word format via email to:

Stephanie Lucas, Meeting Secretariat
E-mail: slucas@physiology.umsmed.edu

Name of Presenting Author: Jiri Kofranek, M.D., Ph.D.

Address: Institute of Pathophysiology, U Nemocnice 5, 128 53 Praha 10,   Prague,   Czech Republic   CZ 12853
         Street Address   City   State   Zip

E-mail: kofranek@gmail.cz

Telephone Number: (+420)777-68-68-68   Fax Number: (+420 777-407-890

1.   All abstracts will be accepted for poster presentation.
2.   The original typed copy of this abstract will be published in a meeting program.
3.   The entire abstract, location of where work was done and text, must fit within the specified dimensions.