



### RESEARCH GROUP



### PRINCIPAL INVESTIGATOR

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### KEY WORDS

Stroke Diagnosis and Acute Treatment • Stroke Logistics • Simulation  
Education, Stroke Awareness • Stroke Care Quality and Implementation  
Research • Pre-clinical Research • Neuroepidemiology • Clinical Trials

### RESEARCH FOCUS

Research activities of the Stroke Research Group (STR) include development and implementation of innovative methods for the evaluation, treatment, and prevention of acute ischemic stroke. Research portfolio is designed across translational axis from basic science to clinical research and implementation research. The emphasis is on a translational approach so that knowledge gained through basic research is applied and tested in clinical practice and then translated into health care system and population.

**European Stroke Organisation**, Switzerland

**ANGELS Initiative**, The world-wide stroke support project, Germany

**University of Calgary**, Canada

Network of Stroke Centres in Central and Eastern Europe

Simulation training and methodology- is intended for stroke teams and professionals in stroke.

System Engineering/Software Developing and data management.

Preclinical Research: highly sophisticated in vitro flow models and small animal models of stroke.

Web-based platform for education of children and lay public in Stroke.

Coordination of clinical trials.

### RESEARCH OBJECTIVES

Research on implementation of evidence-based treatments.

Development of in vitro and animal model for stroke to test new diagnostics (e.g. basic thrombus imaging) and therapeutic strategies (e.g. new recanalization methods).

Identification of better stroke awareness methods including program on stroke awareness in children.



CLINICAL RESEARCH



TRANSLATIONAL RESEARCH



BASIC RESEARCH



CORE FACILITIES

Development of new solutions for prevention, diagnostics and treatment of cardiovascular, neurological and selected oncological diseases and disorders.

**Fully equipped Stroke Unit with neuroimaging machines.**

**The Laboratory of Nanopharmacology NAPHARM is a joint workplace of the Veterinary Research Institute and FNUSA-ICR.**

**IT infrastructure for medical databases and research.**

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## TOP PUBLICATIONS

1. HART, R., SHARMA, M., MUNDL, H., KASNER, S., BANGDIWALA, S., BERKOWITZ, S., SWAMINATHAN, B., LAVADOS, P., WANG, Y., WANG, Y., DAVALOS, A., SHAMALOV, N., MIKULÍK, R. et al. Rivaroxaban for Stroke Prevention after Embolic Stroke of Undetermined Source. *New England Journal of Medicine*. 2018, 378(23), 2191-2201. ISSN 0028-4793. **IF 70.670.**
2. MENON, B., AL-AJLAN, F., NAJM, M., PUIG, J., CASTELLANOS, M., DOWLATSHAHI, D., CALLEJA, A., SOHN, S., AHN, S., POPPE, A., MIKULÍK, R. et al. Association of Clinical, Imaging, and Thrombus Characteristics with Recanalization of Visible Intracranial Occlusion in Patients with Acute Ischemic Stroke. *JAMA*. 2018, 320(10), 1017-1026. ISSN 0098-7484. **IF 51.273.**
3. ALEXANDROV, AV., KOHRMANN, M., SOINNE, L., TSIVGOULIS, G., BARRETO, AD., DEMCHUK, AM., SHARMA, VK., MIKULÍK, R. et al. Safety and efficacy of sonothrombolysis for acute ischaemic stroke: a multicentre, double-blind, phase 3, randomised controlled trial. *Lancet Neurology*. 2019, 18(4), 338-347. ISSN 1474-4422. **IF 28.755.**
4. Mikulík R, Eckstein J, Pearce LA, Mundl H, Rudilosso S, Olavarría VV, Shoamanesh A, Chamorro Á, Martí-Fàbregas J, Veltkamp R, Öztürk Ş, Tatlisumak T, Peacock WF, Berkowitz SD, Connolly SJ, Hart RG. Frequency and Predictors of Major Bleeding in Patients With Embolic Strokes of Undetermined Source: NAVIGATE-ESUS Trial. *Stroke* **2020**, July; 51:2139-2147.

## OTHER SELECTED RESULTS

The Stroke Research Group has developed **innovative platforms for evaluating stroke care quality data** (RES-Q), as well as for providing **education and testing to school children about stroke** (HOBIT). Currently, **an advanced medical imaging database for stroke**, as well as other registry based research initiatives.

**Highly sophisticated in vitro 3D flow models** for testing new recanalization methods.

HART, R., SHARMA, M., MUNDL, H., KASNER, S., BANGDIWALA, S., BERKOWITZ, S., SWAMINATHAN, B., LAVADOS, P., WANG, Y., WANG, Y., DAVALOS, A., SHAMALOV, N., MIKULÍK, R. et al. Rivaroxaban for Stroke Prevention after Embolic Stroke of Undetermined Source. *New England Journal of Medicine*. 2018, 378(23), 2191-2201. ISSN 0028-4793. **IF 70.670.**

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ALEXANDROV, AV., KOHRMANN, M., SOINNE, L., TSIVGOULIS, G., BARRETO, AD., DEMCHUK, AM., SHARMA, VK., MIKULÍK, R. et al. Safety and efficacy of sonothrombolysis for acute ischaemic stroke: a multicentre, double-blind, phase 3, randomised controlled trial. *Lancet Neurology*. 2019, 18(4), 338-347. ISSN 1474-4422. **IF 28.755.**

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