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**The effect of nano-encapsulated Aliskiren on nitrite oxide production in cardiovascular system in experimental hypertension****Martina Cebova, Jana Klimentova, Andrej Barta and Olga Pechanova**  
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The renin-angiotensin-aldosterone system is a cascade that governs cardiovascular, renal, and adrenal functions. Aliskiren is a direct renin inhibitor. We determined whether aliskiren has an effect on hypertension, NOS activity and eNOS expression in the heart and aorta. 12-week-old male SHR were assigned to untreated group, group treated with powdered aliskiren (25 mg/kg/day), group treated with nanoparticle-loaded aliskiren (25 mg/kg/day) and group treated with nanoparticles only for 3 weeks by gavage. Blood pressure (BP) was measured by the tail-cuff plethysmography. NOS activity was determined by conversion of 3[H]-Arginine to 3[H]-Citrulline. BP in powdered aliskiren group was lower (178.7±1.8 mmHg) than in controls (203.4±4.3 mmHg). In addition, in nanoparticle-loaded aliskiren group BP was decreased to 153.8±3.9 mmHg-the level lower in comparison to both, controls and powder aliskiren group. Moreover, both aliskiren groups reduced myocardial hypertrophy in comparison to untreated SHR. Only nanoparticle-loaded aliskiren increased the activity of NOS in the heart, despite decrease of eNOS in comparison to untreated SHR. On the other hand, nanoparticles only decrease both activity and eNOS expression in investigated tissues. In conclusion, despite the diminished effect of nanoparticles on the tissues, aliskiren realized gradually was able to increase NOS activity in the heart which could contribute to BP and hypertrophy decrease. Aliskiren may represent an effective, novel approach to the treatment of hypertension and related disorders. The encapsulation may protect drugs against degradation and thus increase their bioavailability in organs. However, more suitable and biocompatible polymeric nanoparticles are needed.

**Biography**

Martina Cebova has completed her PhD from Comenius University in Slovakia and Postdoctoral studies from Maine Medical Center Research Institute in USA. She has published in reputed journals and has been serving as an Editorial Board Member of reputed.

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