POSTER PRESENTATION

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Endothelin-converting-enzyme 1 inhibition and CGRP receptor recycling in human coronary and middle meningeal arteries

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Although best known for its role in the conversion of big endothelin to endothelin-1, endothelin-converting enzyme 1 (ECE-1) also regulates the resensitization of certain neuropeptide receptors, including the receptor for calcitonin gene-related peptide (CGRP) (Padilla et al., 2007). We investigated the role of ECE-1 in the resensitization of responses to CGRP in human coronary (HCA) and middle meningeal (HMA) arteries using the potent and selective ECE-1 inhibitor, SM-19712. Segments of HCA (Ø 0.5-1 mm) and HMA (\emptyset 0.5–1 mm) were mounted in organ baths and concentration response curves (CRCs) to CGRP were constructed in the absence or presence of the ECE-1 inhibitor SM-19712. After the first CRC to CGRP the segments were washed and after 30-45 minutes a second CRC was constructed in the absence or presence of SM-19712 to investigate ECE-1-dependent CGRP resensitization. Furthermore, CRCs to big endothelin were constructed in the presence or absence of SM-19712. In both HCA and HMA, no differences were seen between the initial responses to CGRP in the absence or presence of SM-19712 (HCA E_{max+SM19712} 94±8%, E_{max-SM19712} 93±5%; pEC_{50+SM19712} 9.1±0.2, pEC_{50-SM19712} 9.2±0.1; HMA E_{max+SM19712} 72±7%, E_{max-SM19712} 59±7%; pEC₅₀ +SM19712 8.5±0.4, pEC_{50-SM19712} 8.1±0.8), as well as between the second CRCs to CGRP in the absence or presence of SM-19712 (HCA E_{max+SM19712} 110±13%, E_{max-} _{SM19712} 78±22%; pEC_{50+SM19712} 7.5±0.5, pEC_{50-SM19712} 7.9±0.01; HMA $E_{max+SM19712}$ 38±13%, $E_{max-SM19712}$ 44±1%; pEC_{50+SM19712} 8.6±0.5, pEC_{50-SM19712} 7.8±0.9). Furthermore, contractions to big endothelin were not different in the absence or presence of SM-19712 in either HCA (E_{max+SM19712} 118±14%, E_{max-SM19712} 115±32%;

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pEC_{50+SM19712} 6.0±0.5, pEC_{50-SM19712} 6.9±0.2) or HMA ($E_{max+SM19712}$ 121±1%, $E_{max-SM19712}$ 147±19%; pEC_{50-SM19712} 7.4±0.4, pEC_{50+SM19712} 7.0±0.8). Our results indicate that ECE-1 does not regulate the resensitization of CGRP responses in HCA and HMA.

Author details

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Reference

 Padilla BE, et al: Endothelin-converting enzyme-1 regulates endosomal sorting of calcitonin receptor-like receptor and beta-arrestins. J Cell Biol 2007, 179(5):981-97.

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