

S52-1 Role of TRPC3/NCX1 in sympathetic regulation of vascular tone

○Satomi KITA¹, Takuya IYODA¹, Takahiro IWAMOTO¹

¹Facul. Med., Fukuoka Univ.

α_1 -adrenoceptor (AR) contributes to the sympathetic regulation of various arteries. However, the molecular mechanisms underlying α_1 -AR-mediated vasoconstriction remain obscure. We found that phenylephrine-induced cytosolic Ca^{2+} elevation and contraction were greater in mesenteric arteries from TRPC3- or NCX1-transgenic mice (TG). In these mice, a bolus injection of norepinephrine elicited ST elevation and AV block (coronary spasm), which were suppressed by SEA0400 (NCX1 inhibitor). When we crossed TRPC3-TG with NCX1-knockout mice or NCX1-TG with dominant negative TRPC3-TG, their offspring mice did not exhibit α_1 -AR-induced hypervasoreactivity. Coimmunoprecipitation, sucrose gradient fractionation, and immunolocalization experiments revealed that NCX1 and TRPC3 are interactively enriched in caveolar raft domains of vascular myocytes. These findings indicate that TRPC3/NCX1 coupling plays a pivotal role in regulating arterial tonus via α_1 -AR.