



Title	Connexin-hemichannels are Involved in Acidosis-induced ATP Release from Skeletal Myocytes
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ABSTRACTS

Abstracts for Oral Presentation:

OP7.

CONNEXIN-HEMICHANNELS ARE INVOLVED IN ACIDOSIS-INDUCED ATP RELEASE FROM SKELETAL MYOCYTES

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ATP is an important extracellular signalling molecule which contributes to exercise vasodilation. We have previously shown that the cystic fibrosis transmembrane conductance regulator (CFTR) is involved in acidosis-induced ATP release from skeletal muscle. However, it is still unknown whether ATP is released through CFTR itself or whether CFTR regulates a separate ATP-release channel. So we investigated: (1) the pathway responsible for CFTR activation in myocytes at low pH; (2) whether connexin (Cx) hemichannels were involved in the acidosis-induced ATP release from skeletal muscle. Lactic acid (10 mM) increased the intracellular cAMP and the extracellular ATP in L6 skeletal myocytes. Similarly, the cAMP-elevating agent, forskolin, increased extracellular ATP. The phosphodiesterase inhibitor, IBMX, increased extracellular ATP in the absence or presence of lactic acid. CFTR phosphorylation was increased by the addition of forskolin alone, and further increased by forskolin plus dibutyryl-cAMP and IBMX, but the forskolin-induced increase in CFTR phosphorylation was inhibited by the PKA inhibitor, KT5720. Whereas KT5720 inhibited acidosis-induced ATP release from myocytes. These data suggest that skeletal muscle CFTR is activated through the cAMP/PKA pathway at low pH. RT-PCR indicated that cultured rat L6 skeletal myocytes expressed mRNA for both Cx40 and Cx43, but Cx40 was expressed only weakly in western blot, whereas Cx43 was strongly expressed. Co-immunoprecipitation results showed that CFTR and Cx43 were associated with each other in the cell membrane. A Cx43 over-expression model was

created by transfecting myocytes with a Cx43 plasmid: Cx43 over-expression was confirmed using western blot. Cx43 over-expressing myocytes released significantly more ATP than control myocytes at pH 6.8, suggesting that Cx43 may be involved in acidosis-induced ATP release, whereas silencing Cx43 expression using siRNA inhibited the acidosis-induced ATP release. Over-expression of CFTR alone did not alter ATP release from myocytes, whereas co-over-expression of CFTR with Cx43 increased ATP release significantly more than over-expression of Cx43 alone. These data suggest that Cx43 co-localises with CFTR in the myocyte membrane, and that it may be involved in ATP release during acidosis; further investigation is required to determine whether and how CFTR interacts with Cx43 to induce ATP release.

OP8.

COMPARISONS OF MEASURED AND SELF-REPORTED ANTHROPOMETRIC VARIABLES AND BLOOD PRESSURE IN A SAMPLE OF HONG KONG ADULT WOMEN

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Objectives: To assess the validity of self-reported weight, height, waist circumference and blood pressure by comparison with measured values in a sample of Hong Kong adult women, and to determine the extent of misclassification of body mass index (BMI) arising from differences between self-reported and measured values.

Methods: This pilot study was integrated in a life course study named "Hong Kong Women's Health Study" in 1253 Hong Kong female nurses aged from 35 to 65 years. A mailed self-administered questionnaire was used to collect data. The validity of self-reported weight, height, waist circumference and blood pressure was examined by inviting 144 (11.5%) participants to have their body measurements at the research centre according to the standard measurement protocol. The measured values were compared with their self-reported values to assess the validity.

Results: On average, there was a high correlation between the self-reported and measured anthropometric and blood pressure values (correlation coefficients ranged from 0.72 to 0.96). No significant differences were found between self-reported and measured weight and blood pressure values (all $P > 0.05$). However, women tended to overestimate their height (mean

difference between self-reported and measured height: 0.42 cm, $P < 0.05$) and underestimate their waist circumference (mean difference between self-reported and measured: 1.61 cm, $P < 0.05$). The Kappa consistency tests all showed good consistency between the categories of the self-reported and measured BMI, waist circumference and blood pressure values, percentage of overall agreement ranging from 60% to 100%. The use of self-reported weight and height resulted in the correct classification of weight status in 85% of women.

Conclusion: We suggest that the self-reported height, weight, waist circumference and blood pressure measures were generally reliable in this population of Hong Kong female nurses. However it is still important to carefully consider potential biases in the interpretation of data when using self-reported indicators in epidemiological studies.