

**OR-74****Effect of Curcumin and Its Analogs on Rat Pulmonary Artery**

Oraya Kruengtip<sup>1,\*</sup>, Krongkarn Chootip<sup>2</sup>, Prapapan Temkitthawon<sup>1</sup>, Kanokwan Changwichit<sup>1</sup>, Thippawan Chuprajob<sup>3</sup>, *Chatchawan Changtam*<sup>4</sup>, Apichat Suksamran<sup>3</sup> and Kornkanok Ingkaninan<sup>1</sup>

<sup>1</sup>*Department of Pharmaceutical Chemistry and Pharmacognosy, Faculty of Pharmaceutical Sciences and Center of Excellence for Innovation in Chemistry, Naresuan University, Phitsanulok 65000, Thailand;* <sup>2</sup>*Department of Physiology, Faculty of Medical Sciences, Naresuan University, Phitsanulok 65000, Thailand;* <sup>3</sup>*Department of Chemistry and Center of Excellence for Innovation in Chemistry, Faculty of Sciences, Ramkhamhaeng University, Bangkok 10240, Thailand;* <sup>4</sup>*Division of Physical science, Faculty of Science and Technology, Huachiew Chalermprakiet University, Samutprakarn 10540, Thailand; E-mail: Kratai-taibio@hotmail.com*

Pulmonary hypertension is a rare lung disorder in which the arteries that carry blood from the heart to the lungs become narrow, making it difficult for blood to flow through the vessels. As a result, the blood pressure in pulmonary arteries rises above normal levels. This abnormally high pressure strains the right ventricle of the heart which could lead to the development of right heart failure. One of the medicines for the treatment of this disease is phosphodiesterase5 (PDE5) inhibitors such as sildenafil (viagra<sup>®</sup>). In the preliminary study, we found that curcuminoid analogs could inhibit PDE5 in a significant level. In this study, we aim at the study of the effect of curcumin (AS-KI 020) and its analogs; AS-KI 021, 022, 033, 064, 086, 087, and 098 on the relaxation of pulmonary artery. The pulmonary arteries with endothelium were isolated from wistar rats and tested in an organ bath using MacLab for monitoring the relaxation. The result showed that curcumin and analogs had EC<sub>50</sub> values in the range of 10<sup>-5</sup> M. Interestingly, these compounds did not affect aorta. The result of maximum relaxation with and without endothelium suggested that the action targets are both smooth muscle and endothelial cells. The evidence from the study supports the development of the curcuminoid analogs for therapeutic application on pulmonary hypertension.

**Keywords:** PDE5, curcumin, curcuminoid analogs, pulmonary hypertension.