Kyoung-Yong Chun et al., J Bioequiv Availab 2015, 7:5
http://dx.doi.org/10.4172/0975-0851.S1.022

OMICS International
conferenceseries.com

6th World Congress on
Bioavailability & Bioequivalence:
BA/BE Studies Summit

August 17-19, 2015 Chicago, USA

Patchable thermal responsive ion channel for drug delivery

Kyoung-Yong Chun, **Wook Choi** and **Chang-Soo Han**
Korea University, Republic of South Korea

We demonstrate the thermal responsive artificial ion channel operated within the range of human body heat for the application of drug delivery. Wax-elastic copolymer, coated onto the poly carbonate track etched nanopores membrane by a controlled-vacuum filtration method, is used for building of temperature-gated nanopores. The flexible ion channel membrane can sustain reversible thermo-responsive gating in the high selective temperature range. The nanopore is actuated by the thermal expansion and the contraction of wax composite layers. The phenomenon of ionic current change according to the temperature is simulated based on analytical computation. The pad type ion channel combined with an agarose gel as an electrolyte shows an excellent sensing ability and a quick response, despite its slower mobility of ions compared to a liquid electrolyte cell. The thermal response in the bendable state of wax composite ion channel nearly has a similar behavior with the flat state. For a detection of human body heat, the current flow is effectively distinguished in the patchable ion channel membrane. Such an effective and patchable thermos-gating ion channel is promising in the regulation of bioavailability for drug delivery system.

Biography

Kyoung-Yong Chun has completed his PhD from Yonsei University and Postdoctoral studies from UC Davis and UIUC Chemical Engineering. He is the Research Professor of Korea University Mechanical Engineering. He has published more than 32 papers in reputed journals including *Nature Nanotechnology and Nature Communications.*

kychun@gmail.com

Notes: