

## Accepted Manuscript

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PII: S0731-7085(17)31290-6  
DOI: <http://dx.doi.org/doi:10.1016/j.jpba.2017.07.025>  
Reference: PBA 11405

To appear in: *Journal of Pharmaceutical and Biomedical Analysis*

Received date: 24-5-2017  
Revised date: 20-7-2017  
Accepted date: 21-7-2017

Please cite this article as: Changhong Yun, Wan-Mohaiza Dashwood, Lawrence N.Kwong, Song Gao, Taijun Yin, Qinglan Ling, Rashim Singh, Roderick H.Dashwood, Ming Hu, Accurate quantification of PGE<sub>2</sub> in the polyposis in rat colon (Pirc) model by surrogate analyte-based UPLC–MS/MS, Journal of Pharmaceutical and Biomedical Analysis <http://dx.doi.org/10.1016/j.jpba.2017.07.025>

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# Accurate quantification of PGE<sub>2</sub> in the polyposis in rat colon (Pirc) model by surrogate analyte-based UPLC-MS/MS

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## Highlights

- The colon PGE<sub>2</sub> of normal (wild type) rat and Pirc rat (an *Apc*-mutant rat) were firstly accurately determined by specific and sensitive UPLC-MS/MS.
- PGE<sub>2</sub> was confirmed to promote Pirc rat colon polyps growth.
- An unusual mobile phase (0.1% ammonia hydroxide) was found to greatly improve the chromatographic separation of prostaglandins.

## Abstract

An accurate and reliable UPLC-MS/MS method is reported for quantification of endogenous Prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) in rat colon mucosa and polyps. This method adopted the “surrogate analyte plus authentic bio-matrix” approach, using two different stable isotopic labeled analogs — PGE<sub>2</sub>-d<sub>9</sub> as the surrogate analyte and PGE<sub>2</sub>-d<sub>4</sub> as the internal standard. Quantitative standard curve was constructed with the surrogate analyte in colon mucosa homogenate; and the method was also successfully validated with the authentic bio-matrix. Concentrations of endogenous PGE<sub>2</sub> in both normal and

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