Supplemental material

**Eprinomectin nanoemulgel for transdermal delivery against endo- and ectoparasites: preparation, *in vitro* and *in vivo* evaluation**

Yujuan Mao1#, Xiaolan Chen1#, Bohui Xu2, Yan Shen3, Zixuan Ye3, Birendra Chaurasiya2, Li Liu1, Yi Li4, Xiaoling Xing1\*, Daquan Chen4\*

1 Jiangsu Animal Husbandry and Veterinary College, Taizhou, China

2School of Pharmacy, Nantong University, No.19 Qixiu Road, Nantong 226001, PR China

3Department of Pharmaceutics, School of Pharmacy, China Pharmaceutical University, Nanjing, China

4School of Pharmacy, Yantai University, Yantai, China

#These authors contributed equally to this work.

\*Corresponding author: Xiaoling Xing. Tel: +86 0 523 86156928. E-mail: jstzxln@sina.com; Daquan Chen. Tel: 0535-6706021. Email: cdq1981@126.com



**Figure S1.** Intact skin and damaged skin of rats.

**Table S1.** The score of erythema according to symptoms

|  |  |
| --- | --- |
| Symptoms | Score |
| No erythema  | 0 |
| Mild erythema (barely seen) | 1 |
| Visible | 2 |
| Severe erythema | 3 |
| Dark red erythema with scab | 4 |

**Table S2.** The score of edema according to symptoms

|  |  |
| --- | --- |
| Symptoms | Score |
| No edema | 0 |
| Mild edema (barely seen) | 1 |
| Bump with clear boundary | 2 |
| Bump up about 1cm | 3 |
| Bump up>1 cm, range increase | 4 |



**Figure S2.** Zeta size and zeta potential of optimized EPR nanoemulsion (A & B) and EPR emulsion (C & D).



**Figure S3.** The cumulative transdermal permeation profile of different EPR formulations (n=3, mean±SD)



**Figure S4.** Cell viability (%) exposed to EPR suspension and EPR nanoemulgel at different concentration.

**Table S3.** Average skin stimulation scores of different group (n=3)

|  |  |  |
| --- | --- | --- |
| Group | Intact/damaged skin | Scores |
| 1(h) | 24(h) | 48(h) | 72(h) |
| Normal saline | Intact | 0 | 0 | 0 | 0 |
| Damaged | 0 | 0 | 0 | 0 |
| EPR nanoemulgel | Intact | 0 | 0 | 0 | 0 |
| Damaged | 0 | 0 | 0 | 0 |
| Blank nanoemulgel | Intact | 0 | 0 | 0 | 0 |
| Damaged | 0 | 0 | 0 | 0 |
| EPR nanoemulsion | Intact | 0 | 0 | 0 | 0 |
| Damaged | 0 | 0 | 0 | 0 |
| Blank nanoemulsion | Intact | 0 | 0 | 0 | 0 |
| Damaged | 0 | 0 | 0 | 0 |