

产品名称：**N-(3-氯-2-甲基)邻氨基苯甲酸**  
 产品别名：**Tolfenamic Acid**；托芬那酸

生物活性：

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |           |            |            |
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| Description               | Tolfenamic Acid (GEA 6414) is a non-steroidal anti-inflammatory and anti-cancer agent, selectively inhibits <b>COX-2</b> , with an <b>IC<sub>50</sub></b> of 13.49 $\mu$ M (3.53 $\mu$ g/mL) in LPS-treated (COX-2) canine DH82 monocyte/macrophage cells, but shows no effect on COX-1.                                                                                                                                                                                                                                                                                                                                                                                                                          |                                     |           |            |            |
| IC <sub>50</sub> & Target | COX-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                     |           |            |            |
|                           | 13.49 $\mu$ M (IC <sub>50</sub> , in cell)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |           |            |            |
| In Vitro                  | Tolfenamic Acid (GEA 6414) is a nonsteroidal antiinflammatory agent, selectively inhibits COX-2, with an IC50 of 13.49 $\mu$ M (3.53 $\mu$ g/mL) in LPS-treated (COX-2) canine DH82 monocyte/macrophage cells, but shows no effect on COX-1[1]. Tolfenamic Acid (GEA 6414) (100 $\mu$ M) inhibits >70% of cell viability of BE3, OE33, and SKGT5. Tolfenamic Acid (GEA 6414) also acts as a potent Sp protein inhibitor, decreases Sp1 and Sp4 and suppresses c-Met expression in esophageal cancer cells BE3 and SKGT5[2]. Tolfenamic AcidTolfenamic Acid (GEA 6414) (50 $\mu$ M) significantly affects gene expression in L3.6pl cells, and downregulates CENPF, KIF20A, LMNB1, MYB, SKP2, CCNE2, and DDIT3[3]. |                                     |           |            |            |
| In Vivo                   | Tolfenamic Acid (GEA 6414) (50 mg/kg 3 times/wk, p.o.) inhibits tumor formation and tumor incidence in N-nitrosomethylbenzylamine (NMBA)-induced esophageal tumor model. Tolfenamic Acid (GEA 6414) also causes decreases in tumor multiplicity and tumor volume in rats treated with NMBA[2].                                                                                                                                                                                                                                                                                                                                                                                                                    |                                     |           |            |            |
| Solvent&Solubility        | <b>In Vitro:</b><br><b>DMSO : <math>\geq</math> 100 mg/mL (382.12 mM)</b><br><b>H<sub>2</sub>O : &lt; 0.1 mg/mL (insoluble)</b><br><br>* " $\geq$ " means soluble, but saturation unknown.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |           |            |            |
|                           | Preparing Stock Solutions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <div>SolventMassConcentration</div> | 1 mg      | 5 mg       | 10 mg      |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 mM                                | 3.8212 mL | 19.1058 mL | 38.2117 mL |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 5 mM                                | 0.7642 mL | 3.8212 mL  | 7.6423 mL  |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 10 mM                               | 0.3821 mL | 1.9106 mL  | 3.8212 mL  |
|                           | *请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。<br><br>储备液的保存方式和期限：-80℃，6 months；-20℃，1 month。-80℃ 储存时，请在 6 个月内使用，-20℃ 储存时，请在 1 个月内使用。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |           |            |            |
|                           | <b>In Vivo:</b><br><br>请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 <b>In Vitro</b> 方式配制澄清的储备液，再依次添加助溶剂：<br><br>——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |           |            |            |
|                           | 1.请依序添加每种溶剂： 10% DMSO →90% corn oil<br><br>Solubility: $\geq$ 2.5 mg/mL (9.55 mM); Clear solution<br><br>此方案可获得 $\geq$ 2.5 mg/mL (9.55 mM, 饱和度未知) 的澄清溶液，此方案不适用于实验周期在半个月以上的实验。<br><br>以 1 mL 工作液为例，取 100 $\mu$ L 25.0 mg/mL 的澄清 DMSO 储备液加到 900 $\mu$ L 玉米油中，混合均匀。                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |           |            |            |

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| <b>References</b>            | <p>[1]. <a href="#">Kay-Mugford P, et al. In vitro effects of nonsteroidal anti-inflammatory drugs on cyclooxygenase activity in dogs. Am J Vet Res. 2000 Jul;61(7):802-10.</a></p> <p>[2]. <a href="#">Maliakal P, et al. Chemopreventive effects of tolafenamic acid against esophageal tumorigenesis in rats. Invest New Drugs. 2012 Jun;30(3):853-61.</a></p> <p>[3]. <a href="#">Sankpal UT, et al. Tolafenamic acid-induced alterations in genes and pathways in pancreatic cancer cells. Oncotarget. 2017 Feb 28;8(9):14593-14603</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>实验参考:</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Cell Assay</b>            | <p>All cells are grown in media (RPMI1640) supplemented with 5% serum and cultured at 37°C in a humidified atmosphere of 95% air and 5% CO<sub>2</sub>. Twenty four hours after seeding, cells are treated with vehicle (0.1% DMSO) or various concentrations of Tolafenamic Acid (GEA 6414) (25/50/100 µM). Cell viability assays are conducted at 24, 48 and 72 h post-treatment. Cells are treated with 50 µM Tolafenamic Acid (GEA 6414) and the cell pellets are harvested at 48 h post-treatment. These pellets are used to prepare cell lysates that are used in Western blot analyses[2].</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Animal Administration</b> | <p>Mice[2]</p> <p>The Fischer 344 (F-344) rat model of esophageal SCC are initially housed two per cage, but eventually separated to one per cage due to increase in size, and are maintained under standard, humane conditions (20±2°C, 50±10% relative humidity, 12-h light/dark cycles). Food and water are provided ad libitum. Body weights are recorded at the time of each dosing. Two weeks after arrival in the animal facility, the rats are randomly assigned into 4 groups: C: NMBA (1-5 week); NTA: (NMBA 1-5 week and then Tolafenamic Acid (GEA 6414) 6-25 week); NC: Negative control (vehicle); and TA: Tolafenamic Acid (GEA 6414) negative control. Control (C) and NTA groups are injected s.c. with NMBA (0.5 mg/kg) in 0.2 mL vehicle three times per week for 5 weeks while negative control groups are injected with vehicle alone. NTA and Tolafenamic Acid groups also receive 50 mg/kg Tolafenamic Acid (GEA 6414) by oral gavage from week 6 through week 25. After the 25th week, the animals are sacrificed, esophagi are cut open longitudinally, and surface tumors are mapped and counted. The number and the size of lesions, including polyps are recorded and images captured. Tumor volume is calculated using the formula for a prolate spheroid: length × width × height × p/6[2].</p> |
| <b>References</b>            | <p>[1]. <a href="#">Kay-Mugford P, et al. In vitro effects of nonsteroidal anti-inflammatory drugs on cyclooxygenase activity in dogs. Am J Vet Res. 2000 Jul;61(7):802-10.</a></p> <p>[2]. <a href="#">Maliakal P, et al. Chemopreventive effects of tolafenamic acid against esophageal tumorigenesis in rats. Invest New Drugs. 2012 Jun;30(3):853-61.</a></p> <p>[3]. <a href="#">Sankpal UT, et al. Tolafenamic acid-induced alterations in genes and pathways in pancreatic cancer cells. Oncotarget. 2017 Feb 28;8(9):14593-14603</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |