Electronic Supplementary Information

Pyrimidinedione-mediated selective Histone Deacetylase Inhibitors with Antitumor Activity in Colorectal Cancer HCT116 Cells.

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**HPLC purity determination:**
The percentage purity of compounds were determined by an Agilent 1100 series HPLC system using C18 column.

Elution conditions: Mobile phase A-Acetonitrile; Mobile phase B-Water containing 0.1% formic acid + 10 mmol NH₄OAc. The flow-rate was 0.2 ml/min and the injection volume was 5 μl. The system operated at 25 °C. Peaks were detected at 210 nm.

**Table 1. Elution condition**

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>Mobile Phase A (ratio)</th>
<th>Mobile Phase B (ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>45</td>
<td>90</td>
<td>10</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>90</td>
</tr>
</tbody>
</table>

**Table 2. Purity of synthetic compounds**

C18 column: Agilent ZORBAX Eclipse XDB-C18 5μm. 4.6 mm × 150 mm column

<table>
<thead>
<tr>
<th>Compounds</th>
<th>Retention time (min)</th>
<th>% Purity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>15.00</td>
<td>95.32</td>
</tr>
<tr>
<td>7</td>
<td>23.57</td>
<td>99.61</td>
</tr>
<tr>
<td>8</td>
<td>18.63</td>
<td>99.71</td>
</tr>
<tr>
<td>9</td>
<td>26.66</td>
<td>99.49</td>
</tr>
<tr>
<td>10</td>
<td>19.94</td>
<td>98.85</td>
</tr>
<tr>
<td>11</td>
<td>19.62</td>
<td>98.13</td>
</tr>
</tbody>
</table>
Figure S1. Mean change from baseline in weight in HCT116 xenograft model.
Figure. S2. The comparison of compound 1 and 6 in HCT116 cell models. Cells were treated with indicated concentrations of indicated drugs for 48 h in MTT assay (A) and Flow cytometric analysis (B). Clonogenic survival (C) was assessed as described in the Experimental section.
$^1$H Spectrum for compound 6
$^1$H Spectrum for compound 7
$^1$H Spectrum for compound 8
$^1$H Spectrum for compound 9
\(^1\)H Spectrum for compound 10
$^1$H Spectrum for compound 11
$^1$H Spectrum for compound 12
$^1$H Spectrum for compound 13
$^1$H Spectrum for compound 14
$^1$H Spectrum for compound 15
$^1$H Spectrum for compound 16a
$^1$H Spectrum for compound 16b
$^1$H Spectrum for compound 17a
$^1$H Spectrum for compound 17b
$^{13}\text{C}$ Spectrum for compound 6
$^{13}$C Spectrum for compound 7
$^{13}$C Spectrum for compound 8
$^{13}$C Spectrum for compound 9
$^{13}$C Spectrum for compound 10
$^{13}$C Spectrum for compound 11
$^{13}$C Spectrum for compound 12
\(^{13}\)C Spectrum for compound 13
$^{13}\text{C}$ Spectrum for compound 14
$^{13}$C Spectrum for compound 15
$^{13}$C Spectrum for compound 16a
$^{13}$C Spectrum for compound 16b
$^{13}$C Spectrum for compound 17a
$^{13}$C Spectrum for compound 17b