**Supplementary File 3. Kinase inhibition of ID-8 related to other known DYRK1A inhibitors**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Inhibitor** | **IC50 (nM) / %inhibition** | | | | | | | | | |
| **CLK1** | **CLK2** | **CLK3** | **CLK4** | **DYRK1A** | **DYRK1B** | **DYRK 2** | **DYRK 4** | **GSK3α** | **GSK3β** |
| **ID-8**1**,a** | 4200 | >10,000 | >10,000 | 440 | 78 | 54 | >10,000 | >10,000 | 380 | 450 |
| **Harmine**2**,b** | 95%3 | 91%3 | 70%3 | - | 33 | 166 | 1931 | 79750 | - | Low inhibition4 |
| **TG003** | 205,c | 2005,c | >10005,c | 155,c | 9303,d | 17503,d | - | - | - | - |
| **INDY**3**,d** | 99% | 88% | 70% | 100% | 240 | 230 | 97% | 87% | 70% | 52% |
| **ProINDY**3 | - | - | - | - | 26% | - | - | - | - | - |
| **NC037**4**,e** | 59 | 1902 | 6936 | 39 | 62 | 697 | - | - | - | - |
| **NC981**4**,e** | 20 | 186 | 1924 | 11 | 14 | 25 | - | - | - | - |
| **NC31044,e** | 173 | 584 | 435 | 70 | 17 | 83 | - | - | - | - |
| **L415,f** | 71 | 720 | >10,000 | 64 | 60 | 44 | 73 | 520 | 210 | 380 |
| 1. (Miyabayashi et al., 2008)  2. (Gockler et al., 2009)  3. (Ogawa et al., 2010)  4. (Rosenthal et al., 2011)  5. (Tahtouh et al., 2012)  a Our data: Maximum inhibitor concentration = 30 µM. [ATP] = 10µM. [γ-33P]ATP = 10 µCi/µl. Enzyme concentration = 0.2 - 50 nM. Substrate concentration = 20 µM.  b Maximum inhibitor concentration = 100 µM. [ATP] = 100 µM. [γ-33P]ATP = 0.6 µCi. Enzyme concentration = 0.4 - 5 mU. Substrate concentration = 100 µM.  c Maximum inhibitor concentration = NR. [ATP] = 1-20 µM. [γ-32P]ATP = 1 µCi. Enzyme concentration = 0.0025-0.025 g/l (0.1-1 µg in 40 µl). Substrate concentration = 20 µM.  d For IC50 values: Maximum inhibitor concentration = 40 µM. [ATP] = 10µM. [γ-32P]ATP = 4 µCi. Enzyme concentration = 0.004-0.04 g/l (0.1-1 µg in 25 µl). Substrate concentration = 0.025 g/l (1 µg in 40 µl). For % inhibition: [INDY] = 10µM  e Maximum inhibitor concentration = 50 µM. [ATP] = 10 µM. [γ-33P]ATP = NR. Enzyme concentration = NR. Substrate concentration = 20 µM.  f Maximum inhibitor concentration = 10 µM. [ATP] = 15 µM. [γ-33P]ATP = NR. Enzyme concentration = NR. Substrate concentration = 1µg/ 30 µl. | | | | | | | | | | |