**Supplementary data**

**Amlexanox enhances the antitumor effect of anti-PD-1 antibody**

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**Figure S1.** Classification of the 142 compounds used for MLR-based screening.

**Table S1**. Compounds used in the MLR-based screening. IFN-γ production is expressed as the fold increase relative to IFN­-γ production in MLR supplemented with anti-PD-1 mAb alone.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Name | Concentration evaluated | Unit | IFN-γ production  |
| 1 | Flupirtine | 6 | μmol/L | 2.002  |
| 2 | Clozapine | 10 | μmol/L | 1.908  |
| 3 | Amlexanox | 6 | μmol/L | 1.730  |
| 4 | Itopride | 0.4 | μmol/L | 1.514  |
| 5 | Cariprazine | 0.01 | μmol/L | 1.497  |
| 6 | Maprotiline | 0.015 | μmol/L | 1.483  |
| 7 | NS-8 | 1 | μmol/L | 1.481  |
| 8 | Primaquine | 0.3 | μmol/L | 1.459  |
| 9 | Fexofenadine | 0.5 | μmol/L | 1.448  |
| 10 | Droperidol | 0.1 | μmol/L | 1.425  |
| 11 | Lenalidomide | 2 | μmol/L | 1.391  |
| 12 | Proguanil | 0.7 | μmol/L | 1.369  |
| 13 | Mequitazine | 0.05 | μmol/L | 1.350  |
| 14 |  Loxapine | 0.006 | μmol/L | 1.326  |
| 15 | Promethazine | 0.1 | μmol/L | 1.315  |
| 16 | Norethisterone | 0.03 | μmol/L | 1.305  |
| 17 | Thioridazine | 0.01 | μmol/L | 1.304  |
| 18 | Levomepromazine | 0.5 | μmol/L | 1.303  |
| 19 | Pipamperone | 0.1 | μmol/L | 1.301  |
| 20 | Spiperone | 0.01 | μmol/L | 1.285  |
| 21 | Conivaptan | 0.003 | μmol/L | 1.279  |
| 22 |  Bromperidol | 0.003 | μmol/L | 1.275  |
| 23 | Lidocain | 0.3 | μmol/L | 1.271  |
| 24 | Tandospirone | 0.005 | μmol/L | 1.270  |
| 25 | ZD-0947 | 1 | μmol/L | 1.263  |
| 26 | Ibudilast | 0.1 | μmol/L | 1.246  |
| 27 | ICA-27243 | 0.4 | μmol/L | 1.246  |
| 28 | Suvorexant | 0.002 | μmol/L | 1.237  |
| 29 | Ramelteon | 0.004 | μmol/L | 1.236  |
| 30 | Cilengitide | 0.08 | μmol/L | 1.225  |
| 31 | Etilefrine | 0.1 | μmol/L | 1.224  |
| 32 | Sultopride | 0.6 | μmol/L | 1.220  |
| 33 | Ondansetron | 0.03 | μmol/L | 1.211  |
| 34 | Perospirone | 0.01 | μmol/L | 1.207  |
| 35 | Nemonapride | 0.01 | μmol/L | 1.197  |
| 36 | KW-7158 | 1 | μmol/L | 1.196  |
| 37 | Atovaquone | 8 | μmol/L | 1.195  |
| 38 | Roflumilast | 0.001 | μmol/L | 1.193  |
| 39 | Domperidone | 0.01 | μmol/L | 1.190  |
| 40 | Cinacalcet | 0.05 | μmol/L | 1.189  |
| 41 | Metformin | 4 | μmol/L | 1.188  |
| 42 | Enprostil | 0.00005 | μmol/L | 1.182  |
| 43 | Maxipost | 3.7 | μmol/L | 1.181  |
| 44 | Sertraline | 0.1 | μmol/L | 1.177  |
| 45 | Carpipramine | 0.003 | μmol/L | 1.176  |
| 46 | Ketanserin | 0.001 | μmol/L | 1.166  |
| 47 | Baclofen | 0.6 | μmol/L | 1.163  |
| 48 | Zotepine | 0.05 | μmol/L | 1.153  |
| 49 | Metoclopramide | 0.1 | μmol/L | 1.152  |
| 50 | Liothyronine | 0.002 | μmol/L | 1.150  |
| 51 | Etizolam | 0.05 | μmol/L | 1.148  |
| 52 | Iloperidone | 0.1 | μmol/L | 1.147  |
| 53 | Denopamine  | 0.03 | μmol/L | 1.145  |
| 54 | Tropisetron | 0.07 | μmol/L | 1.142  |
| 55 | Sarpogrelate | 1 | μmol/L | 1.139  |
| 56 | Tiapride | 1 | μmol/L | 1.124  |
| 57 | Praziquantel | 0.3 | μmol/L | 1.121  |
| 58 | Tolterodine | 0.002 | μmol/L | 1.113  |
| 59 | Melperone | 0.2 | μmol/L | 1.111  |
| 60 | Thiethylperazine | 0.01 | μmol/L | 1.107  |
| 61 | Bortezomib | 0.05 | μmol/L | 1.105  |
| 62 | Periciazine | 0.02 | μmol/L | 1.104  |
| 63 | Asenapine | 0.015 | μmol/L | 1.103  |
| 64 | Pindolol | 0.1 | μmol/L | 1.098  |
| 65 | Cilostazol | 2 | μmol/L | 1.088  |
| 66 | Capsaicin | 0.05 | μmol/L | 1.083  |
| 67 | Pravastatin | 2 | μmol/L | 1.079  |
| 68 | Tamsulosin | 0.01 | μmol/L | 1.076  |
| 69 | Retigabine | 6 | μmol/L | 1.073  |
| 70 | Ciprofloxacin | 3 | μmol/L | 1.071  |
| 71 | Odanacatib | 0.02 | μmol/L | 1.069  |
| 72 | Ozagrel | 3 | μmol/L | 1.059  |
| 73 | Amisulpride | 0.02 | μmol/L | 1.052  |
| 74 | Ornoprostil | 0.01 | μmol/L | 1.052  |
| 75 | Tolvaptan | 0.6 | μmol/L | 1.050  |
| 76 | Phenylephrine  | 0.1 | μmol/L | 1.050  |
| 77 | Raloxifene | 0.003 | μmol/L | 1.046  |
| 78 | Ziprasidone | 0.005 | μmol/L | 1.027  |
| 79 | Beraprost | 0.0005 | μmol/L | 1.025  |
| 80 | Clopidogrel | 0.003 | μmol/L | 1.017  |
| 81 | Timiperone | 0.01 | μmol/L | 1.014  |
| 82 | Quetiapine | 0.1 | μmol/L | 1.013  |
| 83 | Mirabegron  | 0.2 | μmol/L | 1.002  |
| 84 |  ‎Limaprost | 0.000003 | μmol/L | 0.977  |
| 85 | Clomipramine | 0.4 | μmol/L | 0.974  |
| 86 | Flucytosine | 0.1 | μg/mL | 0.958  |
| 87 | Verapamil  | 0.15 | μmol/L | 0.957  |
| 88 | Amoxapine | 0.1 | μmol/L | 0.954  |
| 89 | Fluvoxamine | 0.15 | μmol/L | 0.915  |
| 90 | Bacitracin | 0.22 | μg/mL | 0.909  |
| 91 | Chloramphenicol | 1 | μg/mL | 0.904  |
| 92 | Pitavastatin | 0.02 | μg/mL | 0.894  |
| 93 | Blonanserin | 0.001 | μmol/L | 0.890  |
| 94 | Micafungin | 0.008 | μg/mL | 0.889  |
| 95 | Vancomycin | 0.2 | μg/mL | 0.885  |
| 96 | Metoprolol | 0.008 | μg/mL | 0.881  |
| 97 | Elvitegravir | 0.009 | μg/mL | 0.878  |
| 98 | Tinidazole | 15 | μmol/L | 0.877  |
| 99 | Ritonavir | 0.0043 | μg/mL | 0.873  |
| 100 | Efavirenz | 0.0003 | μg/mL | 0.872  |
| 101 | Molindone | 0.06 | μg/mL | 0.867  |
| 102 | Fingolimod  | 0.00003 | μmol/L | 0.863  |
| 103 | Dapsone | 0.001 | μg/mL | 0.858  |
| 104 | Abacavir | 0.0286 | μg/mL | 0.848  |
| 105 | Ipragliflozin | 0.0003 | μg/mL | 0.847  |
| 106 | Lurasidone | 0.01 | μmol/L | 0.822  |
| 107 | Sildenafil | 0.2 | μmol/L | 0.819  |
| 108 | Bezafibrate | 6 | μmol/L | 0.814  |
| 109 | Flupenthixol | 0.001 | μmol/L | 0.801  |
| 110 | Linezolid | 0.06 | μg/mL | 0.797  |
| 111 | Liraglutide | 0.0002 | μg/mL | 0.790  |
| 112 | Mefloquine | 0.0041 | μg/mL | 0.779  |
| 113 | Atazanavir | 0.0016 | μg/mL | 0.777  |
| 114 | Amphotericin B | 0.1 | μg/mL | 0.763  |
| 115 | CAL-101 | 0.0008 | μg/mL | 0.761  |
| 116 | Azelastine | 0.001 | μmol/L | 0.758  |
| 117 | Pregabalin | 15 | μmol/L | 0.757  |
| 118 | Trifluperidol | 0.1 | μmol/L | 0.756  |
| 119 | Thiothixene | 0.1 | μmol/L | 0.747  |
| 120 | Indinavir | 0.0142 | μg/mL | 0.740  |
| 121 | Clothiapine | 0.1 | μmol/L | 0.735  |
| 122 | Lamotrigine | 6 | μmol/L | 0.714  |
| 123 | Sertindole | 0.02 | μmol/L | 0.701  |
| 124 | Aliskiren | 0.0007 | μg/mL | 0.698  |
| 125 | Hydroxychloroquine | 2 | μmol/L | 0.691  |
| 126 | Mifepristone | 0.001 | μg/mL | 0.685  |
| 127 | Isotretinoin | 0.3 | μg/mL | 0.681  |
| 128 | Orlistat | 0.0248 | μg/mL | 0.681  |
| 129 | Albendazole | 0.02 | μg/mL | 0.679  |
| 130 | Amoxicillin | 0.05 | μg/mL | 0.641  |
| 131 | Emtricitabine | 0.0012 | μg/mL | 0.638  |
| 132 | Cyclophosphamide | 1 | μg/mL | 0.631  |
| 133 | Linagliptin | 0.0005 | μg/mL | 0.629  |
| 134 | Adefovir | 0.05 | μg/mL | 0.602  |
| 135 | Clofibrate | 4 | μg/mL | 0.598  |
| 136 | Auranofin | 0.01 | μg/mL | 0.575  |
| 137 | Panobinostat | 0.03 | μmol/L | 0.567  |
| 138 | Cefditoren | 0.06 | μg/mL | 0.557  |
| 139 | Doxycycline | 5 | μmol/L | 0.555  |
| 140 | Pidotimod | 5 | μg/mL | 0.540  |
| 141 | Nateglinide | 1 | μg/mL | 0.448  |
| 142 | Levofloxacin | 0.38 | μg/mL | 0.441  |