**Exploring the potential of Nutraceutical to Combat Gliomas: Focus on mIDH2 Protein**

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**Table S1.** The MM-GBSA energetics of Enasidenib and all the screened molecules from the nutraceutical subset against mIDH2 protein.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **S. No.** | **Compounds** | **XP GScore** | **ΔGBind** | **Electrostatic energy** | **Covalent energy** | **Lipophilicity** | **Solvation energy** | **Van der Waals energy** |
|  | Enasidenib | -6.03 | -38.54 | -10.94 | 3.69 | -11.66 | 13.95 | -32.42 |
|  | DB00171 | -7.08 | -30.55 | -8.44 | 12.34 | -7.15 | 18.96 | -41.86 |
|  | DB00157 | -6.73 | -37.04 | -10.83 | -0.89 | -10.14 | 26.98 | -38.16 |
|  | DB00131 | -6.57 | -25.95 | -19.09 | 4.65 | -6.94 | 22.14 | -23.34 |
|  | DB04272 | -6.53 | -22.26 | -19.77 | 3.76 | -4.55 | 14.55 | -14.56 |
|  | DB00141 | -6.10 | -27.03 | -9.71 | 5.03 | -9.44 | 9.98 | -21.74 |
|  | DB06750 | -6.04 | -45.23 | -15.70 | 4.70 | -19.09 | 23.40 | -36.30 |
|  | DB00126 | -6.00 | -29.86 | -20.85 | 1.03 | -7.29 | 14.21 | -15.27 |
|  | DB00118 | -5.77 | -48.76 | 12.20 | -0.68 | -11.77 | -14.29 | -32.50 |
|  | DB00140 | -5.72 | -36.84 | -27.49 | -0.22 | -9.12 | 25.43 | -23.12 |
|  | DB00114 | -5.49 | -30.99 | -9.69 | -1.54 | -8.97 | 8.75 | -18.09 |
|  | DB00165 | -5.37 | -17.59 | -2.63 | 1.67 | -11.55 | 10.37 | -14.19 |
|  | DB00148 | -5.18 | -24.58 | -20.59 | 0.04 | -2.35 | 12.21 | -12.47 |
|  | DB14732 | -5.12 | -34.00 | -12.54 | 1.45 | -14.33 | 18.84 | -26.47 |
|  | DB00120 | -4.93 | -31.63 | -10.35 | -0.12 | -11.08 | 9.09 | -17.86 |
|  | DB00143 | -4.88 | -28.16 | -15.37 | 0.57 | -6.31 | 23.43 | -28.24 |
|  | DB00755 | -4.83 | -41.14 | -6.25 | 1.81 | -19.12 | 10.60 | -27.62 |
|  | DB13191 | -4.79 | -26.26 | -18.65 | 1.77 | -3.65 | 15.66 | -19.92 |
|  | DB00135 | -4.78 | -31.92 | -10.51 | -0.59 | -11.12 | 10.14 | -18.52 |
|  | DB00166 | -4.73 | -33.41 | -12.96 | 2.32 | -11.29 | 8.57 | -19.22 |
|  | DB08839 | -4.69 | -25.29 | -11.54 | 3.23 | -12.60 | 14.47 | -17.71 |
|  | DB00147 | -4.67 | -31.35 | -18.28 | 1.26 | -10.31 | 10.71 | -13.53 |
|  | DB00116 | -4.64 | -31.29 | -3.40 | -1.09 | -12.03 | 23.27 | -35.88 |
|  | DB14650 | -4.64 | -22.64 | -9.59 | 3.71 | -5.83 | 14.43 | -22.39 |
|  | DB02959 | -4.60 | -31.13 | -12.34 | 0.85 | -11.67 | 15.35 | -20.45 |
|  | DB00162 | -4.57 | -40.90 | -5.21 | 4.48 | -22.20 | 13.37 | -30.54 |
|  | DB00161 | -4.50 | -15.83 | -2.32 | 2.65 | -7.31 | 6.27 | -13.93 |
|  | DB00149 | -4.49 | -21.87 | -8.95 | 0.34 | -7.20 | 8.81 | -13.44 |
|  | DB00128 | -4.48 | -22.84 | -21.40 | 0.79 | -3.03 | 16.45 | -14.09 |
|  | DB00173 | -4.46 | -14.53 | -10.08 | 0.68 | -0.98 | 12.39 | -15.17 |
|  | DB00154 | -4.43 | -44.32 | -9.05 | 5.05 | -21.25 | 15.20 | -33.26 |
|  | DB00117 | -4.43 | -21.06 | -7.93 | 0.22 | -4.99 | 12.17 | -18.73 |
|  | DB00170 | -4.42 | -31.83 | -0.02 | -1.66 | -12.75 | 3.82 | -20.74 |
|  | DB00168 | -4.41 | -32.76 | -6.63 | 1.19 | -14.42 | 12.12 | -23.81 |
|  | DB00627 | -4.41 | -24.49 | -9.41 | -0.35 | -8.16 | 7.02 | -12.62 |
|  | DB00138 | -4.39 | -19.87 | -0.21 | 5.88 | -8.19 | 8.99 | -24.39 |
|  | DB00142 | -4.37 | -10.84 | -5.83 | 0.85 | -4.41 | 16.07 | -15.99 |
|  | DB00121 | -4.34 | -29.94 | -24.94 | 3.85 | -7.78 | 19.01 | -19.02 |
|  | DB01892 | -4.32 | -47.72 | -0.56 | 4.34 | -22.91 | 11.01 | -39.57 |
|  | DB01708 | -4.31 | -34.479 | -8.97 | -0.02 | -14.70 | 9.08 | -19.33 |
|  | DB00167 | -4.28 | -19.51 | -7.83 | 3.17 | -8.36 | 6.23 | -11.69 |
|  | DB00172 | -4.21 | -13.07 | -1.60 | -0.56 | -5.76 | 9.64 | -13.71 |
|  | DB01783 | -4.11 | -30.70 | -15.44 | 4.66 | -8.72 | 13.08 | -23.14 |
|  | DB08841 | -4.10 | -24.02 | -9.42 | 1.50 | -12.38 | 11.01 | -13.62 |
|  | DB08845 | -4.09 | -23.52 | -22.21 | 0.24 | -3.49 | 15.64 | -12.29 |
|  | DB14002 | -4.02 | -50.88 | -7.29 | 4.54 | -24.10 | 13.69 | -36.83 |
|  | DB01436 | -3.97 | -42.85 | -8.22 | 1.37 | -20.38 | 13.75 | -28.85 |
|  | DB01992 | -3.88 | -24.10 | -15.21 | 3.21 | -8.06 | 24.83 | -26.22 |
|  | DB00151 | -3.84 | -8.282 | 0.60 | 0.47 | -2.86 | 8.17 | -13.30 |
|  | DB06756 | -3.80 | -22.82 | -3.11 | 2.37 | -6.02 | -1.32 | -13.84 |
|  | DB01065 | -3.77 | -24.20 | -3.91 | 2.86 | -14.64 | 17.01 | -25.48 |
|  | DB00134 | -3.75 | -28.70 | -11.69 | -1.15 | -7.64 | 8.27 | -15.31 |
|  | DB00174 | -3.72 | -15.95 | -3.23 | -1.75 | -3.48 | 10.99 | -17.47 |
|  | DB00159 | -3.68 | -33.85 | -1.01 | 1.23 | -17.67 | 10.87 | -27.27 |
|  | DB00155 | -3.67 | -21.50 | -16.56 | 5.50 | -6.23 | 15.44 | -17.90 |
|  | DB00133 | -3.65 | -15.21 | -6.19 | 1.11 | -3.07 | 10.51 | -15.84 |
|  | DB00160 | -3.60 | -13.89 | -12.97 | 1.08 | -3.31 | 14.30 | -12.02 |
|  | DB01956 | -3.58 | -13.32 | -11.87 | 2.25 | -2.23 | 11.40 | -11.83 |
|  | DB00153 | -3.53 | -27.43 | -0.92 | 3.64 | -23.58 | 13.83 | -20.40 |
|  | DB00156 | -3.52 | -25.66 | -15.65 | 1.09 | -5.58 | 8.79 | -13.46 |
|  | DB00139 | -3.51 | -26.25 | -18.49 | 0.61 | -3.80 | 10.00 | -13.55 |
|  | DB00123 | -3.51 | -18.20 | -1.30 | 1.15 | -7.85 | 8.90 | -17.94 |
|  | DB00145 | -3.51 | -11.68 | -14.40 | 2.26 | -1.93 | 15.12 | -11.65 |
|  | DB00130 | -3.50 | -13.29 | 2.48 | 0.82 | -4.78 | 7.38 | -18.02 |
|  | DB00163 | -3.45 | -43.95 | -4.46 | 2.91 | -23.18 | 19.14 | -38.14 |
|  | DB00158 | -3.45 | -40.61 | -24.60 | 5.24 | -8.13 | 31.11 | -41.29 |
|  | DB00152 | -3.43 | -31.97 | 21.60 | 0.83 | -10.44 | -20.56 | -22.16 |
|  | DB08887 | -3.40 | -40.83 | 0.01 | 8.05 | -23.44 | 13.00 | -38.44 |
|  | DB01322 | -3.37 | -31.36 | -0.35 | 0.45 | -15.60 | 12.16 | -28.02 |
|  | DB00119 | -3.32 | -17.82 | -12.09 | 0.45 | -1.79 | 8.49 | -12.39 |
|  | DB00129 | -3.27 | -21.37 | -14.25 | 0.80 | -6.63 | 13.64 | -13.86 |
|  | DB00150 | -3.25 | -24.58 | 2.54 | 0.05 | -13.15 | 10.47 | -22.90 |
|  | DB14001 | -3.12 | -47.99 | -6.56 | 10.17 | -24.54 | 14.72 | -40.91 |
|  | DB03852 | -3.00 | -18.25 | 1.03 | 0.16 | -8.52 | 5.48 | -16.41 |
|  | DB00169 | -2.99 | -38.56 | -4.64 | 6.11 | -20.61 | 10.73 | -29.32 |
|  | DB04789 | -2.99 | -34.69 | -12.07 | 2.07 | -11.76 | 31.10 | -42.31 |
|  | DB00146 | -2.91 | -33.95 | -0.76 | 3.30 | -22.50 | 15.05 | -28.54 |
|  | DB00122 | -2.64 | -23.62 | -3.36 | 0.97 | -7.89 | -2.45 | -10.40 |
|  | DB00132 | -2.54 | -44.79 | -7.82 | 3.38 | -20.60 | 14.18 | -32.87 |
|  | DB00136 | -2.44 | -35.24 | -13.42 | 4.70 | -18.54 | 22.57 | -29.20 |
|  | DB00127 | -2.35 | -18.52 | -8.98 | 1.11 | -8.73 | 13.09 | -14.24 |
|  | DB06746 | -2.26 | -19.51 | -12.54 | 1.67 | -6.81 | 20.27 | -21.29 |
|  | DB00125 | -2.15 | -17.03 | 1.27 | 0.85 | -6.63 | 9.31 | -20.67 |
|  | DB14043 | -1.82 | -37.10 | -6.40 | 2.68 | -19.33 | 19.09 | -32.20 |

The energy values are depicted in kcal/mol

**Table S2.** The hydrophobic contacts of the 14 screened compounds using PLIP server.

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Compounds** | **No. of hydrophobic contacts** | |
| 1. | Enasidenib | 2 |
| 2. | DB00118 | 5 |
| 3. | DB00132 | 10 |
| 4. | DB00154 | 13 |
| 5. | DB00158 | 2 |
| 6. | DB00162 | 9 |
| 7. | DB00163 | 8 |
| 8. | DB00169 | 7 |
| 9. | DB00755 | 3 |
| 10. | DB01436 | 8 |
| 11. | DB01892 | 7 |
| 12. | DB06750 | 9 |
| 13. | DB08887 | 9 |
| 14. | DB14001 | 9 |
| 15. | DB14002 | 11 |