|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Thioanisole | Diphenil sulfide | Dibenzyl sulfide | Dibenzothiophene |
|  | Time (min) | % MPSO | % MPSOO | % Total Product | % DPSO | % DPSOO | % Total Product | % DBSO | % DBSOO | % Total Product | % DBTO | % DBTOO | % Total Product |
| D-Dz | 1 | 64.6 | 10.6 | 75.2 | 70.9 | 0.0 | 70.9 | 28.1 | 0.0 | 28.1 | 69.4 | 8.8 | 78.1 |
|  | 30 | 91.2 | 8.4 | 99.6 | 100.0 | 0.0 | 100.0 | 31.2 | 0.0 | 31.2 | 78.3 | 10.2 | 88.4 |
| L-Dz | 1 | 55.3 | 12.9 | 68.2 | 67.2 | 0.0 | 67.2 | 32.1 | 0.0 | 32.1 | 90.3 | 4.5 | 94.7 |
|  | 30 | 80.9 | 12.5 | 93.4 | 93.9 | 0.0 | 93.9 | 46.5 | 0.0 | 46.5 | 92.0 | 4.5 | 96.5 |
| ControlHemin | 1 | 1.0 | 11.5 | 12.5 | 1.9 | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 1.4 |
|  | 30 | 2.0 | 12.0 | 14.0 | 2.9 | 0.0 | 2.9 | 2.6 | 0.0 | 2.6 | 2.4 | 0.0 | 2.4 |
| ControlH2O2 | 1 | 1.0 | 11.7 | 12.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
|  | 30 | 1.2 | 12.4 | 13.6 | 0.7 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**S2 Table**. **Percentage conversion to sulfoxides and sulfones after 1 and 30 minutes of reaction in the presence of D or L-DNAzyme.** Reactions were carried out in the presence of DNA (12 µM), hemin (12 µM), and H2O2 (4 mM). Controls were performed using hemin (12 µM) with H2O2 (4 mM) without DNA (Control Hemin), and H2O2 (4 mM) only (Control H2O2). Concentration of substrates, in reactions and controls, was 2.5 mM for thioanisole (MPS), 0.1 mM for diphenyl sulfide (DPS), 0.25 mM dibenzylsulfide (DBS), and 0.15 mM for dibenzothiophene (DBT).