SUPPORTING INFORMATION

Development of Selective Inhibitors for Aldehyde Dehydrogenases based on Substituted Indole-2,3-diones

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Supplementary figures

Figure S1. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **1** versus varied NAD^+ at fixed saturating propionaldehyde concentration on ALDH2. The plots shown are fits based on • 0, ◦ 2, ▼ 2.5, Δ 2.75, and ■ 3 μM inhibitor concentrations.

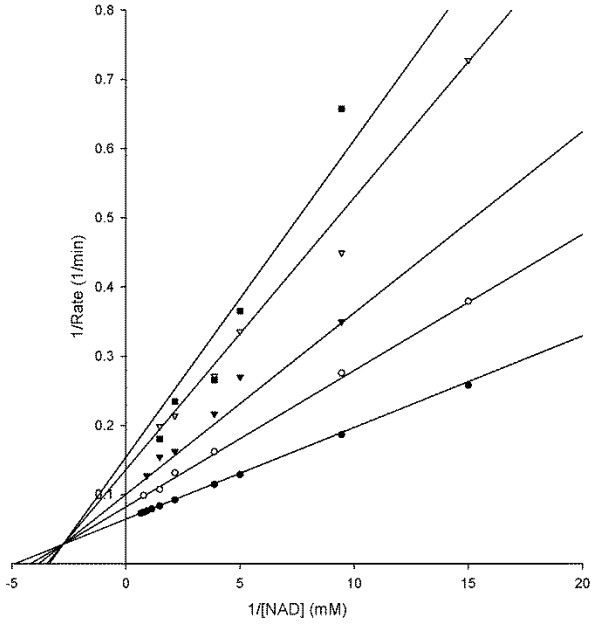

Figure S2. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **3** versus varied NAD^+ at fixed saturating propionaldehyde concentration on ALDH2. The plots shown are fits based on • 0,◦ 10, ▼ 25, Δ 50, and ■ 70 μM inhibitor concentrations.

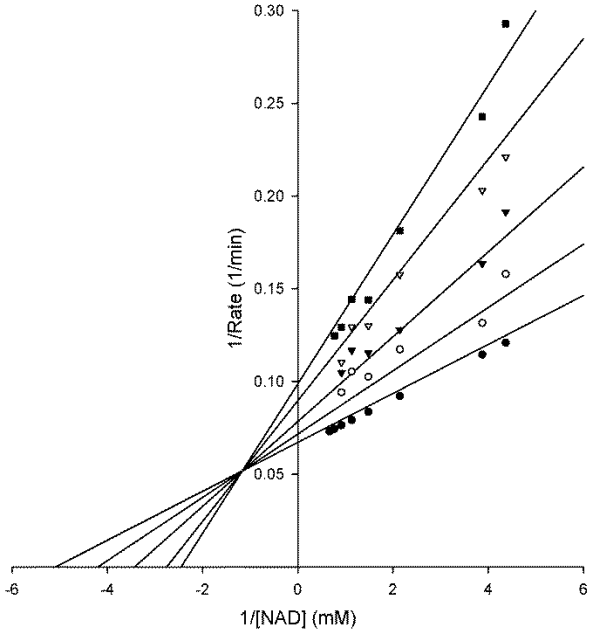

Figure S3. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **1** versus varied NAD^+ at fixed saturating propionaldehyde concentration on ALDH1. The plots shown are fits based on • 0; 0.14, ▼ 0.28, Δ 0.57, and ■ 0.71 μM inhibitor concentrations.

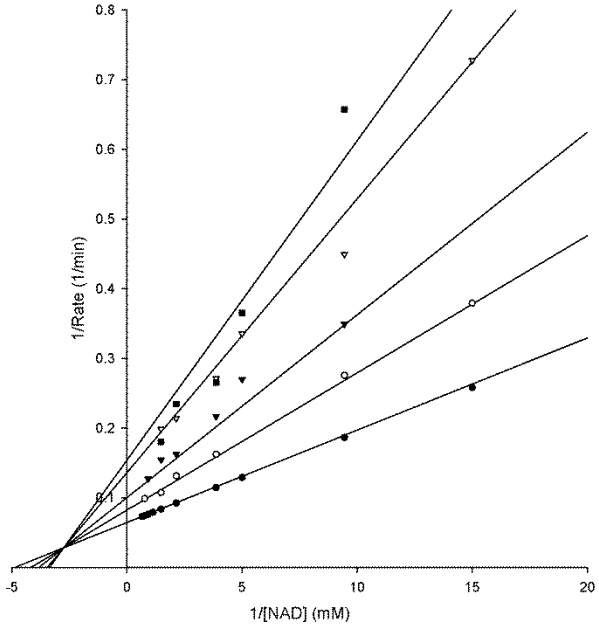

Figure S4. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **1** versus varied $NADP^+$ at fixed saturating benzaldehyde concentration on ALDH3. The plots shown are fits based on • 0; 0.15, ▼ 0.20, Δ 0.45, ■ 0.62, and □ 0.99 μM inhibitor concentrations.

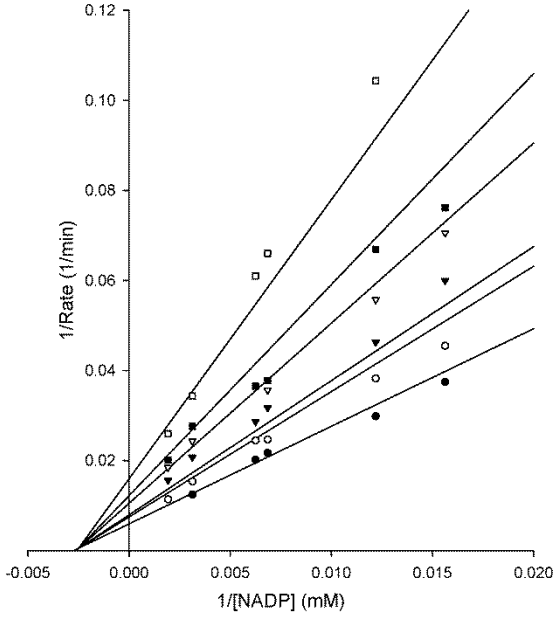

Figure S5. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **3** versus varied $NADP^+$ at fixed saturating benzaldehyde concentration on ALDH3. The plots shown are fits based on • 0,◦ 3, ▼ 5, Δ 8, ■ 10, and □ 25 μM inhibitor concentrations.

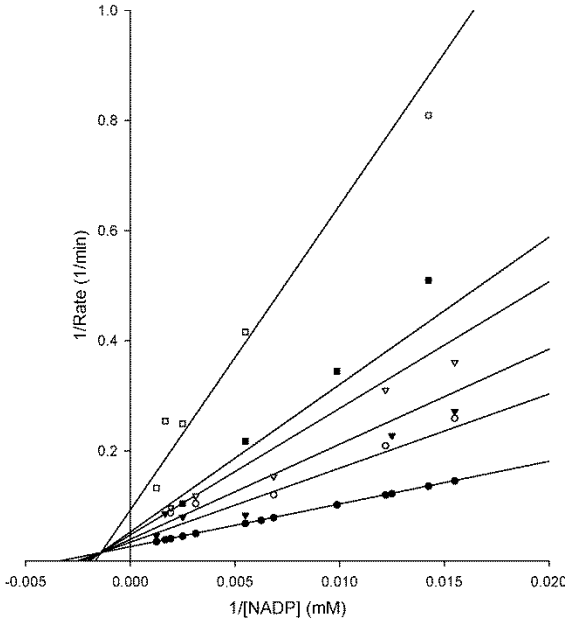

Figure S6. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **1** versus varied propionaldehyde at fixed saturating NAD^+ concentration on ALDH2. The plots shown are fits based on • 0,◦ 0.33, ▼ 0.67, Δ 1, ■ 2, and □ 3.3 μM inhibitor concentrations.

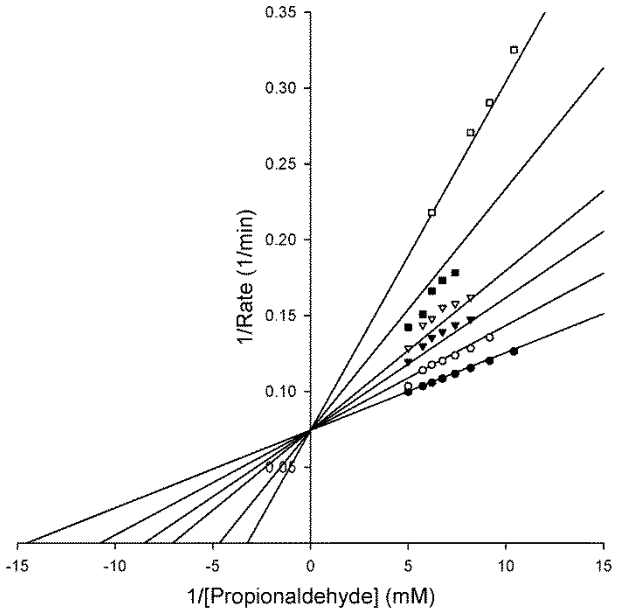

Figure S7. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **3** versus varied propionaldehyde at fixed saturating NAD^+ concentration on ALDH2. The plots shown are fits based on • 0, 50, ▼ 70, and Δ 150 µM inhibitor concentrations.

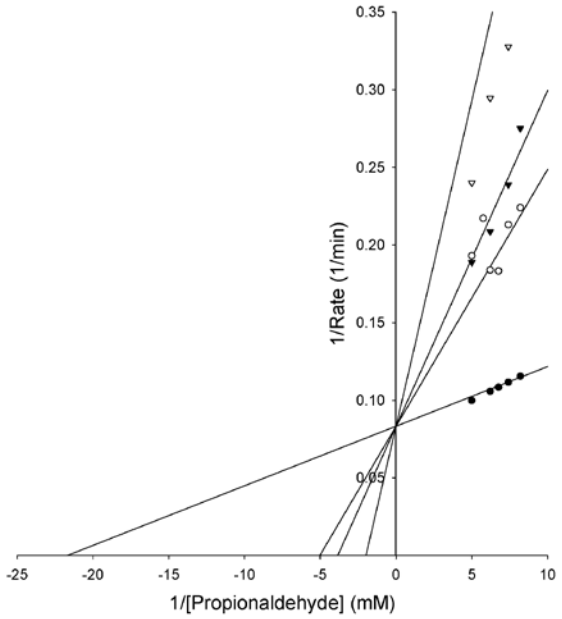

Figure S8. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **1** versus varied propionaldehyde at fixed saturating NAD^+ concentration on ALDH1. The plots shown are fits based on • 0,0.36, ▼ 0.48, and Δ 0.8 µM inhibitor concentrations.

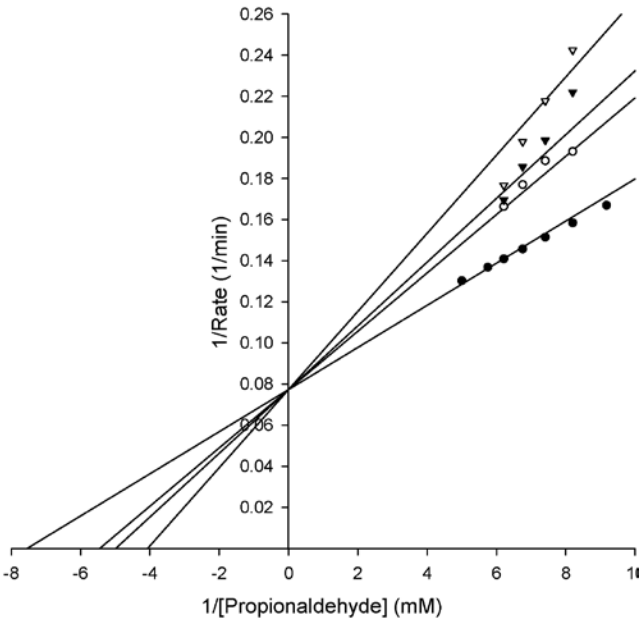

Figure S9. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **1** versus varied benzaldehyde at fixed saturating $NADP^+$ concentration on ALDH3. The plots shown are fits based on • θ,0.19, ▼ 0.49, and Δ 0.79 μM inhibitor concentrations.

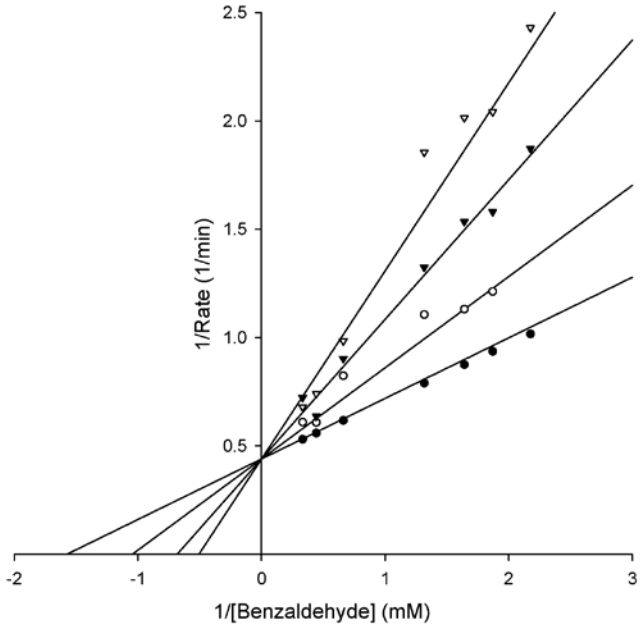

Figure S10. Lineweaver-Burk plot of the non-linear fit to the non-competitive inhibition equation for the effect of **3** versus varied benzaldehyde at fixed saturating $NADP^+$ concentration on ALDH3. The plots shown are fits based on • 0,◦ 1, ▼ 2.5, Δ 5, and ■ 7 μM inhibitor concentrations.

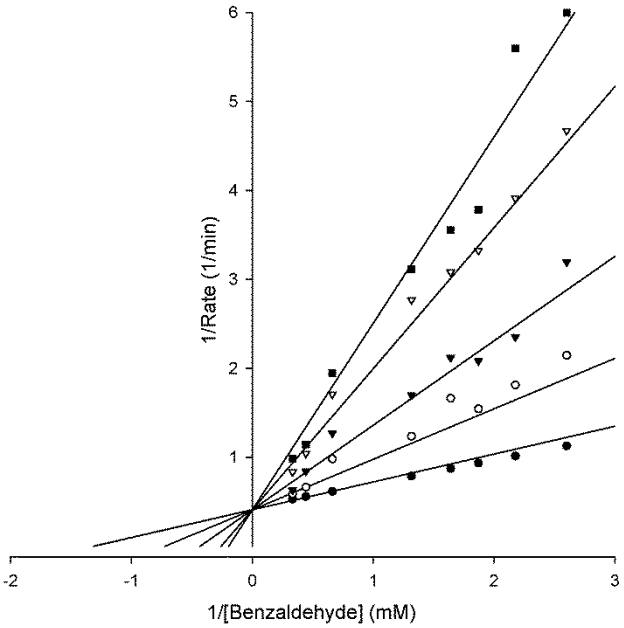

Figure S11. NMR Spectra provided by vendor of1-benzyl-5-bromo-1H-indole-2,3-dione (**5**).

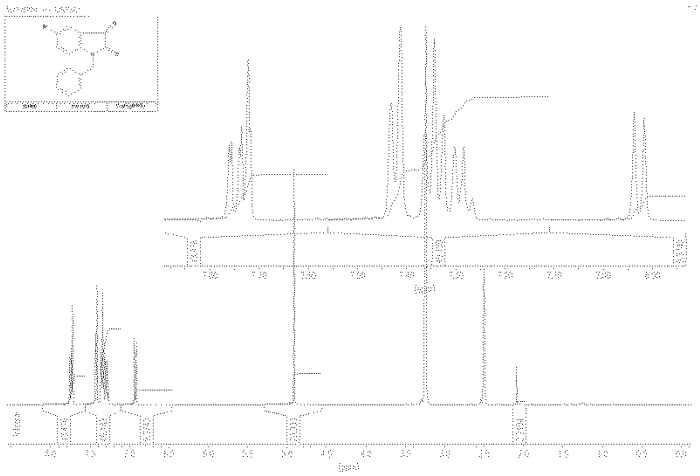

Figure S12. NMR Spectra provided by vendor of1-(2-phenylethyl)-1H-indole-2,3-dione (**6**).

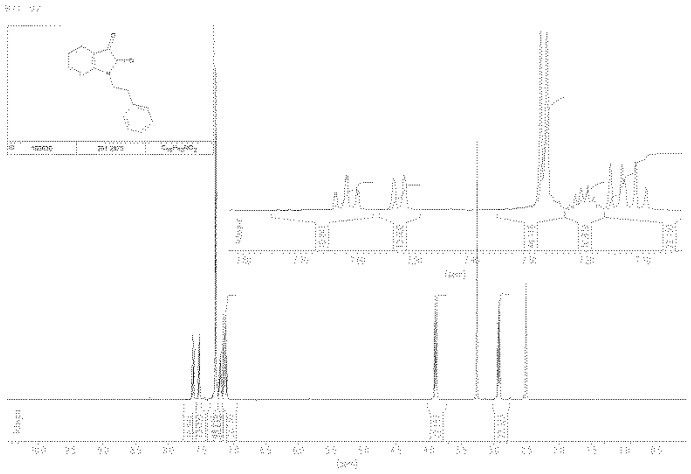

Figure S13. NMR Spectra provided by vendor of5-chloro-1-(2-phenylethyl)-1H-indole-2,3-dione (**7**).

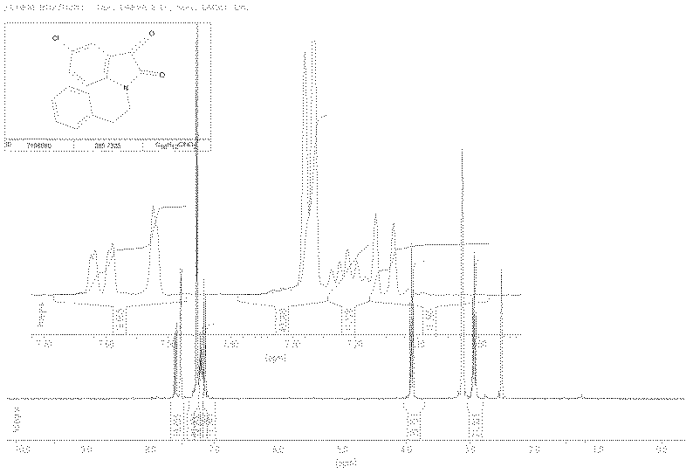

Figure S14. NMR Spectra provided by vendor of5-bromo-1-(2-phenylethyl)-1H-indole-2,3-dione (**8**).

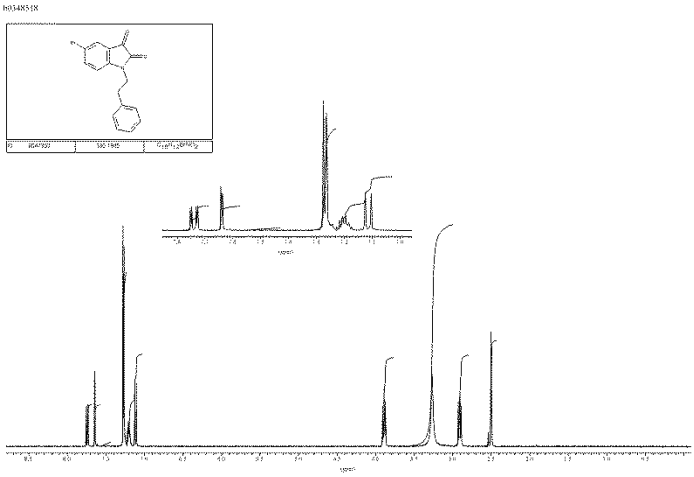

Figure S15. NMR Spectra provided by vendor of7-bromo-5-methyl-1H-indole-2,3-dione (**1**).

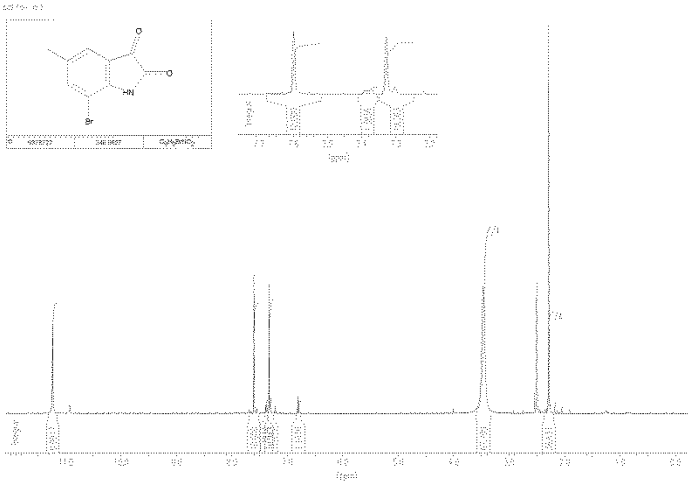

Figure S16. NMR Spectra provided by vendor of1-(3-phenylpropyl)-1H-indole-2,3-dione (**9**).

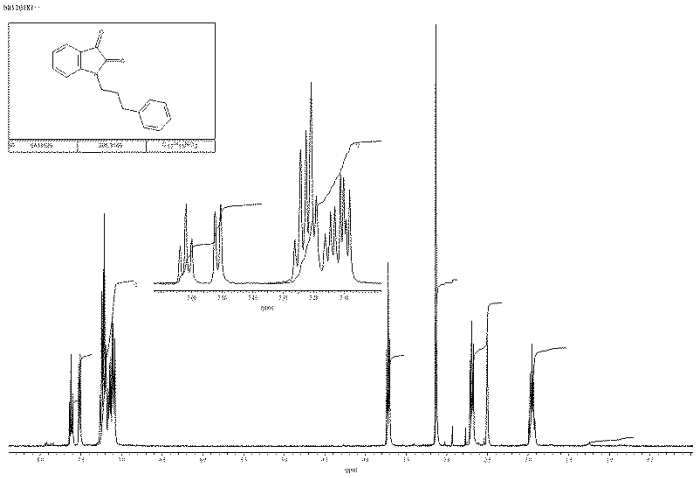

Figure S17. NMR Spectra provided by vendor of1-(3-phenyl-2-propen-1-yl)-1H-indole-2,3-dione (**10**).

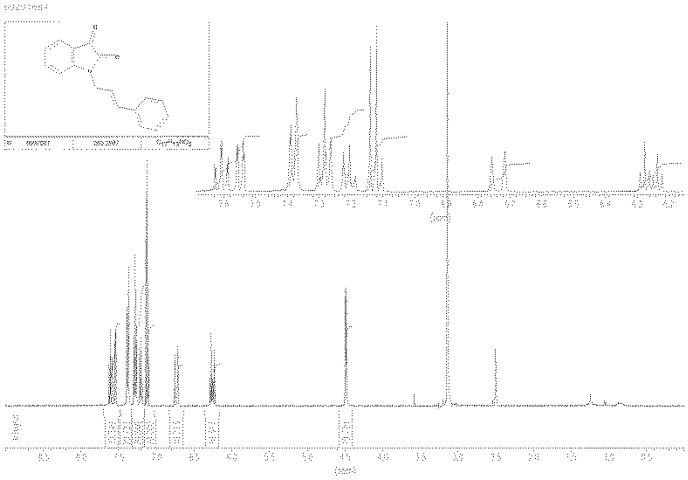

Figure S18. NMR Spectra provided by vendor of1-{[4-(1,3-benzodioxol-5-ylmethyl)-1-piperazinyl]methyl}-1H-indole-2,3-dione (**20**).

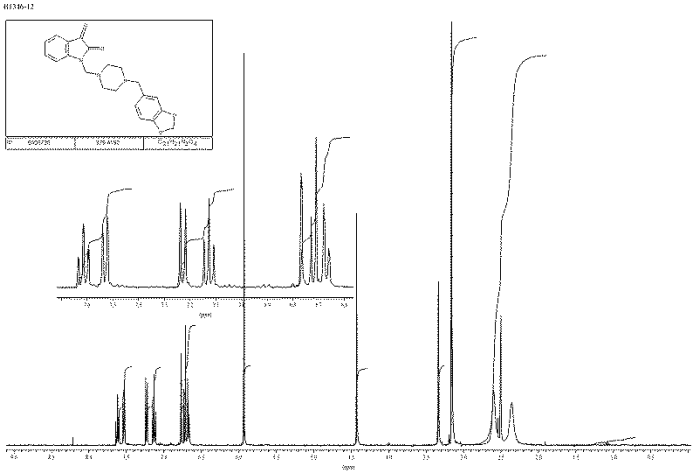

Figure S19. NMR Spectra provided by vendor of1-{[4-(4-fluorobenzyl)-1-piperazinyl]methyl}-1H-indole-2,3-dione (**16**)

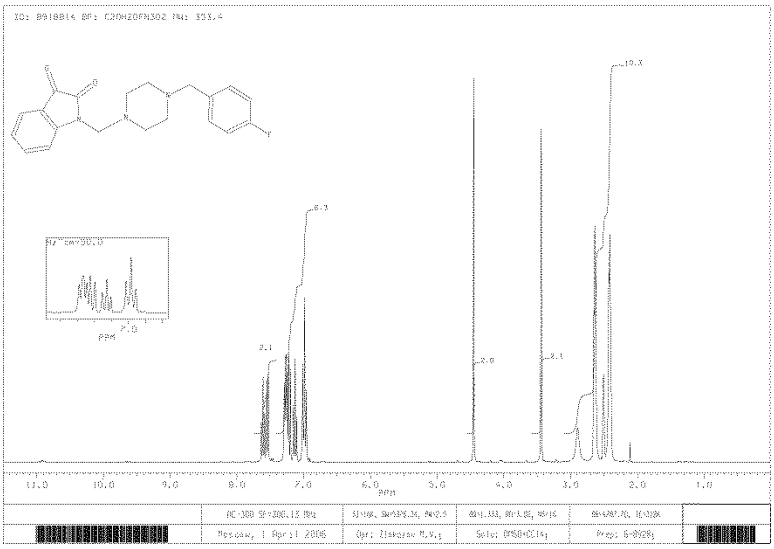

Figure S20. NMR Spectra provided by vendor of1-{[4-(3-chlorobenzyl)-1-piperazinyl]methyl}-1H-indole-2,3-dione (**18**).

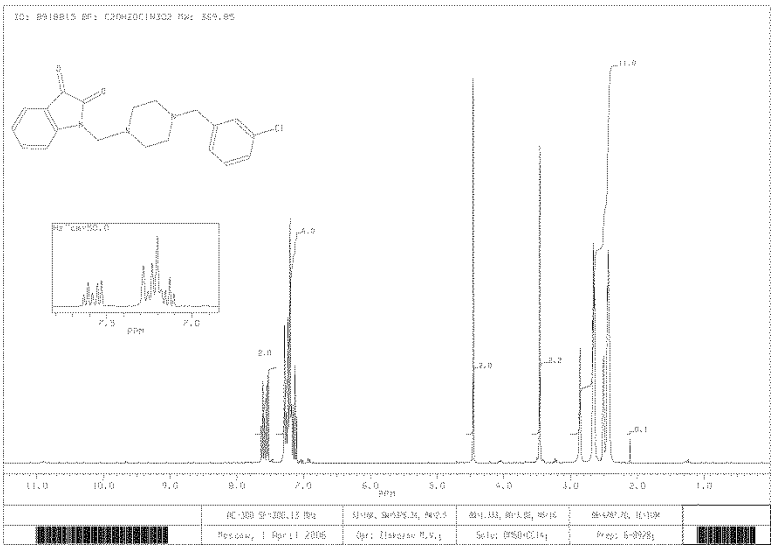

Figure S21. NMR Spectra provided by vendor of1-{[4-(2-fluorobenzyl)-1-piperazinyl]methyl}-1H-indole-2,3-dione (**15**).

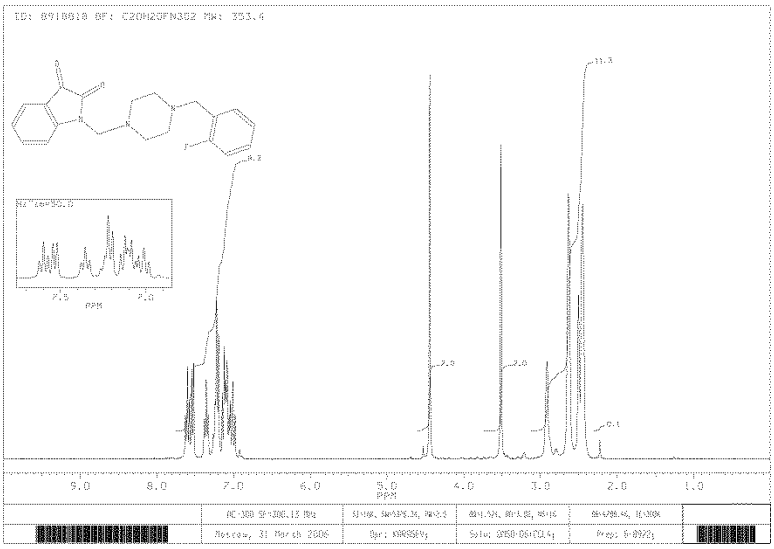

Figure S22. NMR Spectra provided by vendor of1-{[4-(3-fluorobenzyl)-1-piperazinyl]methyl}-1H-indole-2,3-dione (**17**).

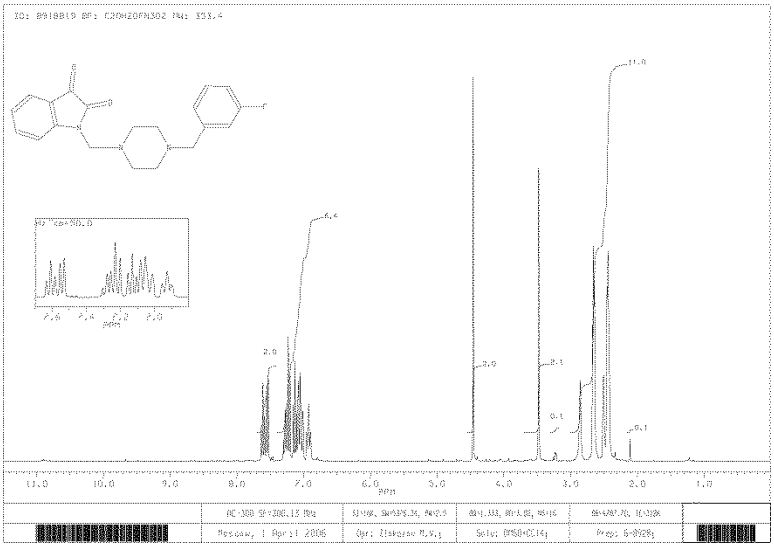

Figure S23. NMR Spectra provided by vendor of1-{[4-(3-methoxybenzyl)-1-piperazinyl]methyl}-1H-indole-2,3-dione (**19**).

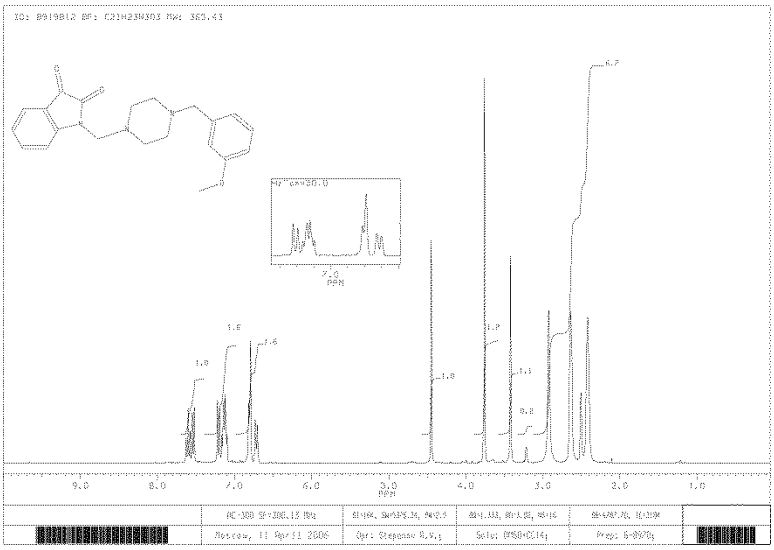

Figure S24. NMR Spectra provided by vendor of1-{[4-(1,3-benzodioxol-5-ylmethyl)-1-piperazinyl]methyl}-5-bromo-1H-indole-2,3-dione (**21**).

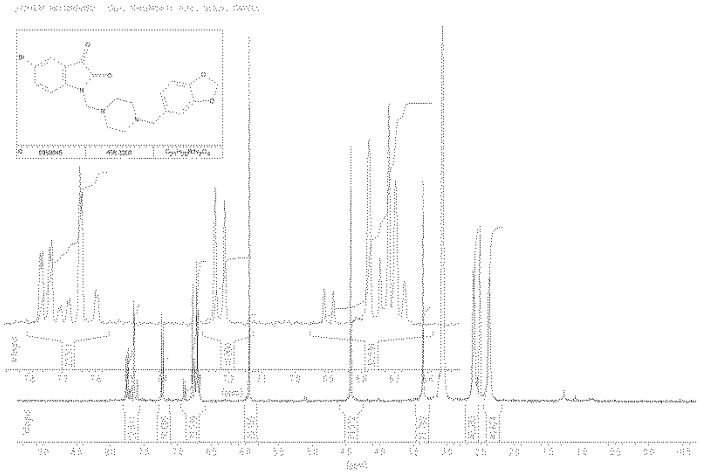

Figure S25. NMR Spectra provided by vendor of1,1'-[1,3-imidazolidinediylbis(methylene)]bis(1H-indole-2,3-dione) (**22**).

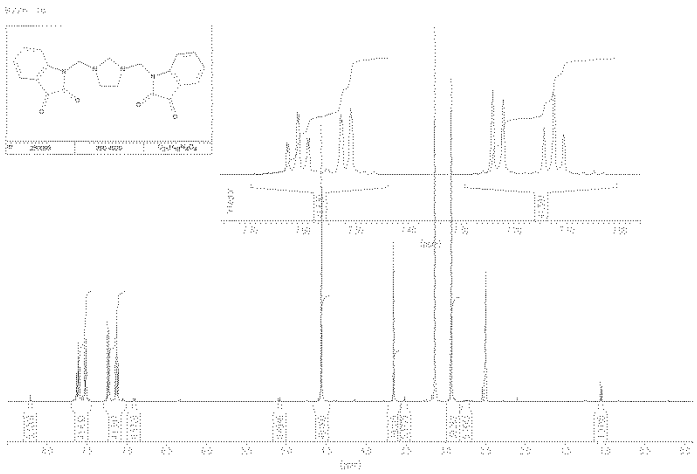

Figure S26. NMR Spectra provided by vendor of1-(4-morpholinylmethyl)-1H-indole-2,3-dione (**12**).

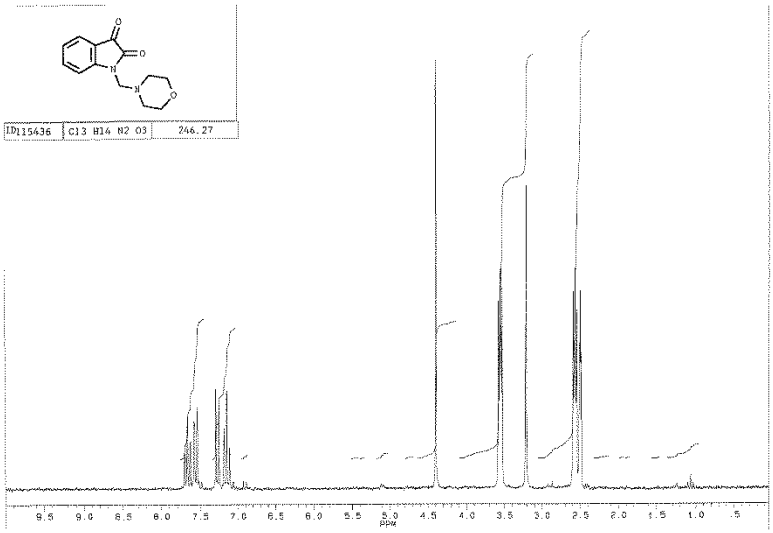

Figure S27. NMR Spectra provided by vendor of1-[(4-methyl-1-piperazinyl)methyl]-1H-indole-2,3-dione (**13**).

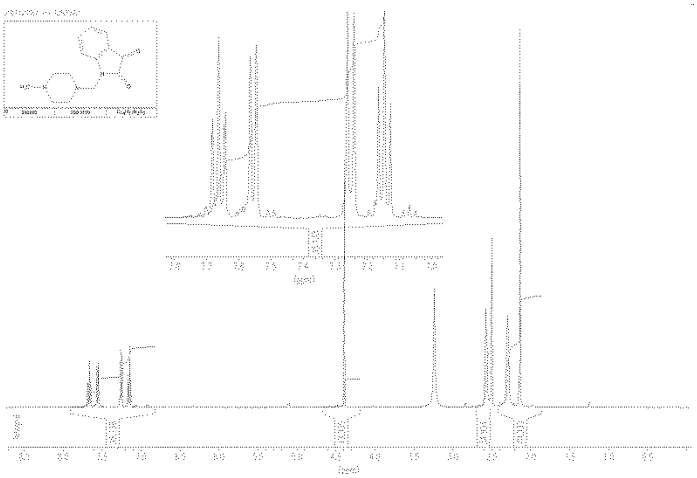

Figure S28. NMR Spectra provided by vendor of1-[(4-benzyl-1-piperazinyl)methyl]-1H-indole-2,3-dione (**14**).

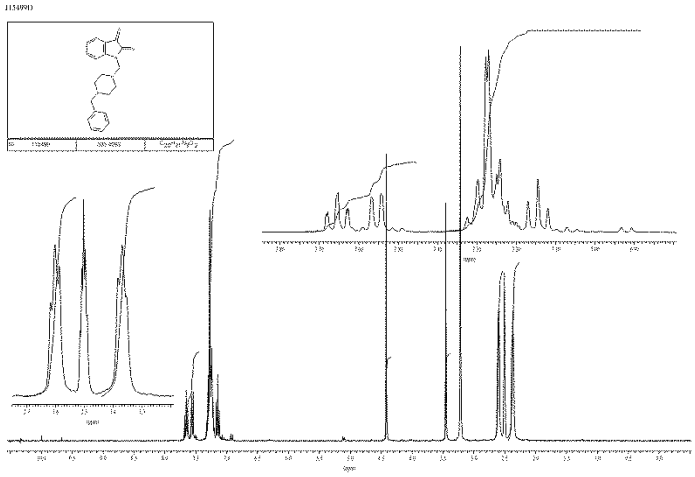

Figure S29. NMR Spectra provided by vendor of1-pentyl-2,3-dihydro-1H-indole-2,3-dione (**2**).

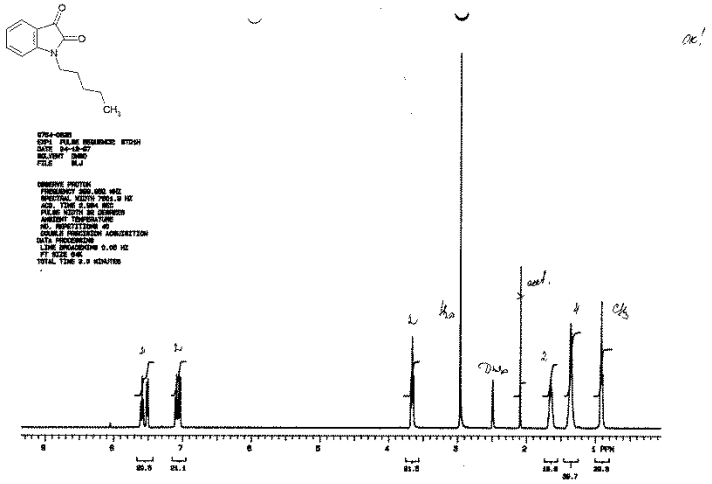

Figure S30. NMR Spectra provided by vendor of1-benzyl-2,3-dihydro-1H-indole-2,3-dione (**3**).

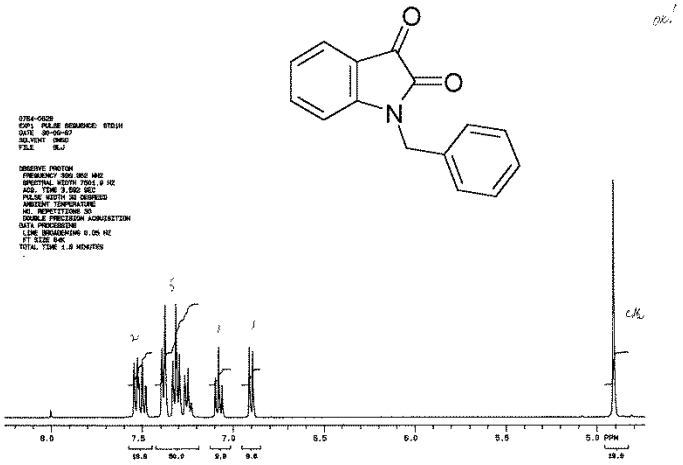

Figure S31. NMR Spectra provided by vendor of1-benzyl-5-chloro-2,3-dihydro-1H-indole-2,3-dione (**4**) (PO # 950549)

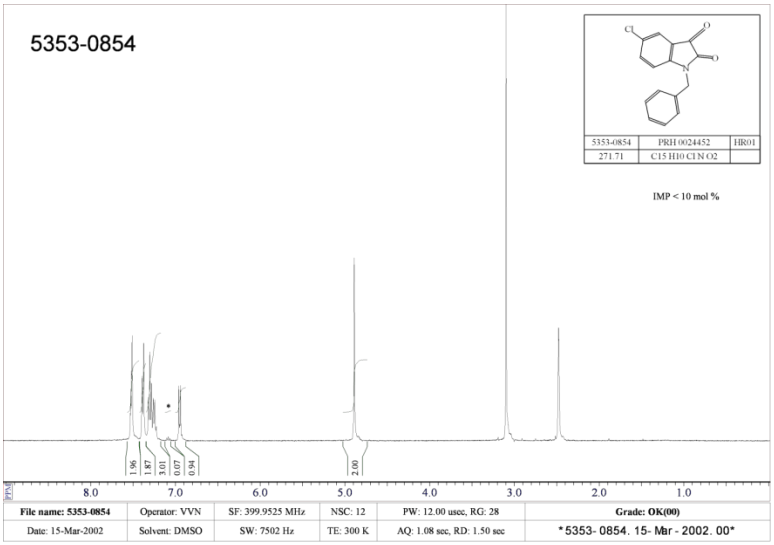

Figure S32. NMR Spectra provided by vendor of5-chloro-1-[(2E)-3-phenylprop-2-en-1-yl]-2,3-dihydro-1H-indole-2,3-dione (**11**)