

# Additional File 1

## Adsorption of hydroxamate siderophores and EDTA on goethite in the presence of the surfactant sodium dodecyl sulfate

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## Characterization of N-acetyl-O,O,O-triacetyl-desferrioxamine and N-Acetyl-desferrioxamine by NMR Spectroscopy

The following section provides some additional details about the characterization of the DFOD by NMR spectroscopy. <sup>1</sup>H and <sup>13</sup>C NMR spectra were obtained using a Bruker AM-300 NMR spectrometer. NMR chemical shifts are reported in ppm relative to solvent resonance. About 3 mg of sample were dissolved in deuterated dimethylsulfoxide (DMSO-d<sub>6</sub>) for <sup>1</sup>H NMR measurement. For <sup>13</sup>C NMR measurements, about 30 mg sample were used each time.

The mass spectroscopy and NMR spectroscopic characterization for N-Acetyl-O,O,O-triacetyl-desferrioxamine:

MS(FAB+): 729.4 (MH<sup>+</sup>).

<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>): δ 1.32 (qint, 6H, J = 6.6 Hz, CH<sub>2</sub>), 1.48 (mt, 6H, CH<sub>2</sub>), 1.53 (m, 6H, CH<sub>2</sub>), 1.95 (s, 3H, CH<sub>3</sub>), 1.98 (s, 3H, CH<sub>3</sub>), 2.19 (s, 9H, CH<sub>3</sub>), 2.47 (m, 4H, CH<sub>2</sub>), 2.57 (m, 4H, CH<sub>2</sub>), 3.18 (qint, 6H, J = 6.0 Hz, CH<sub>2</sub>), 3.67 (m, 6H, CH<sub>2</sub>), 6.26 (s,br, H, CONH), 6.35 (s,br, H, CONH), 6.43 (s,br, H, CONH).

<sup>13</sup>C NMR (75 MHz, DMSO-d<sub>6</sub>): δ 17.9, 19.8, 22.6, 23.1, 23.3, 25.9, 27.7, 28.5, 29.8, 38.7, 47.0, 168.2, 170.0, 170.3, 171.3, 172.2.

The mass spectroscopy and NMR spectroscopic characterization for N-Acetyl-desferrioxamine:

MS(FAB+): 603.4 (MH<sup>+</sup>).

<sup>1</sup>H NMR (300 MHz, DMSO-d<sub>6</sub>): δ 1.20 (qint, 6H, J = 6.9 Hz, CH<sub>2</sub>), 1.36 (qint, 6H, J = 7.0 Hz, CH<sub>2</sub>), 1.48 (qint, 6H, J = 7.0 Hz, CH<sub>2</sub>), 1.76 (s, 3H, CH<sub>3</sub>), 1.95 (s, 3H, CH<sub>3</sub>), 2.25 (t, 4H, J = 7.0 Hz, CH<sub>2</sub>), 2.56 (t, 4H, J = 7.0 Hz, CH<sub>2</sub>), 2.98 (m, 6H, CH<sub>2</sub>), 3.44 (t, 6H, J = 6.9 Hz, CH<sub>2</sub>), 7.78 (m, 3H, CONH), 9.60 (s, 2H, NOH), 9.65 (s, 1H, NOH).

<sup>13</sup>C NMR (75 MHz, DMSO-d<sub>6</sub>): δ 20.4, 22.6, 23.5, 26.0, 27.6, 28.9, 29.9, 38.5, 46.8, 47.1, 169.1, 170.2, 171.4, 172.0.