Discussion

Methods

Our simulations assume a linear systems model of image formation. The imaging system is described by its point-spread function, for the simulated images in Figure 4, the point-spread function was characterized by a GMM center frequency and lateral resolution of approximately 0.5 mm. Scatterers were represented as point sources with amplitudes obeying the temperature dependence as predicted in Figure 1. Initial amplitudes for each scatterer were generated from a uniform distribution. Initial positions were generated from a uniform distribution over the region shown.

For the simulated images of Figure 4, a total of 1000 lipid and 500 aqueous scatterers covered the 1 cm x 1 cm image region. Gaussian noise was added to the IF image for some experiments. The envelope of the IF image was generated using the Hilbert transform for display and analysis.

CBE measures were computed with reference to the initial image at 37°C. Analysis over the entire image region included a 3x3 moving average filter to reduce spurious contributions to the CBE.

Analysis – Measured CBE

Analysis – CBE from Simulated Images

Discussion

Conclusions

Acknowledgement

This work was supported in part by NIH grant R21-CA90531 from the National Cancer Institute and the Wilkinson Trust at Washington University in St. Louis.