

Evaluating the performance of a magnetic nanoparticle-based detection method using circle-to-circle amplification

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Table S1. Sequences used in this study.

	Sequence (5'-3')
Padlock probe NDV	Phos- TGACCCCATTTCCCTGGTGTATGCAGCTCCTCAGTAATAGTGTCTTAC GACGCAACTTCACCGAATGAAAGGATATGCTATCYTGAA
Target NDV	Biotin- CTCTCTCTCTCAGGGAAATGGGGTCATTCARGATAGCATATCCTT
Restriction oligo NDV	GTGTATGCAGCTCCTCAGTA
Detection oligo NDV for 1RCA	Biotin-TTTTTCCTCAGTAATAGTGTCTTAC-6-FAM
Detection oligo NDV for C2CA	Biotin-TTTTTCCTCAGTAATAGTGTCTTAC
Padlock probe <i>Salmonella</i>	Phos- GAACATAGAAATGATCATCGTGTATGCAGCTCCTCAGTAATAGTGTCT TACCAGTCGCGTGAGGACCAATAGGTAGGTAATGGRATGAC
Target <i>Salmonella</i>	GATGATCATTCTATGTTTCGTCATYCCATTACCTACCT
Capture oligo <i>Salmonella</i>	Biotin- CTCTCTCTCTCTCTCTCTCTGTAATTCAGGTCGTAACGAGCACTGTTA AGTAGAGAAAG
Restriction oligo <i>Salmonella</i>	GTGTATGCAGCTCCTCAGTA
Detection oligo <i>Salmonella</i> for C2CA	Biotin-TTTTGTAAAGACACTATTACTGAGG

Magnetization spectra for 1RCA NDV samples

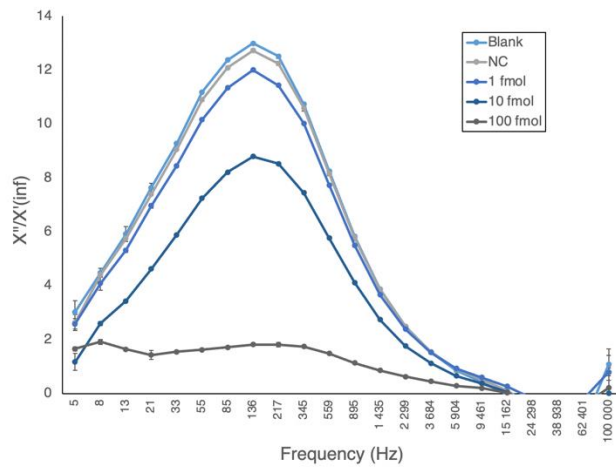


Figure S1. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 2. Error bars represent standard deviation based on two independent samples. The peak values for the different samples are the following: Blank = 12.99 ± 0.02 , NC = 12.72 ± 0.05 , 1 fmol = 12.00 ± 0.01 , 10 fmol = 8.79 ± 0.0035 and 100 fmol = 1.85 ± 0.03 .

Magnetization spectra for C2CA NDV samples

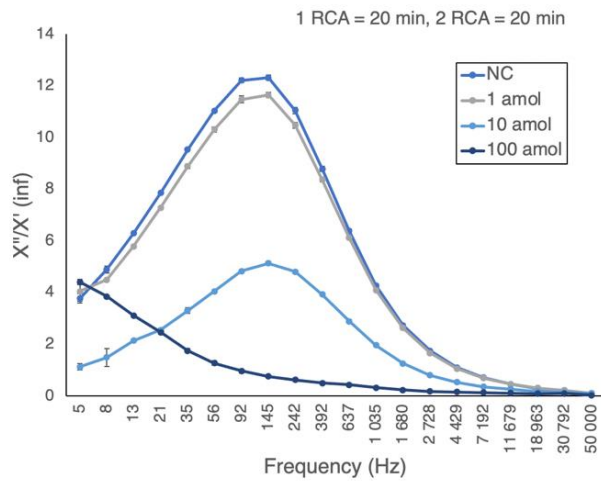


Figure S2. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 3 with the following amplification times: 1RCA = 20 min and 2RCA = 20 min. Error bars represent standard deviation based on two independent samples. The peak values for the different samples are the following: NC = 12.31 ± 0.1 , 1 amol = 11.64 ± 0.11 , 10 amol = 5.13 ± 0.07 and 100 amol = 0.76 ± 0.03 .

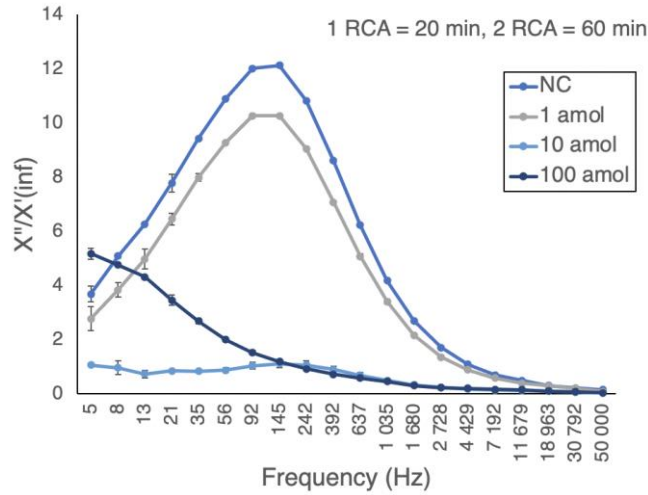


Figure S3. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 4 with the following amplification times: 1RCA = 20 min and 2RCA = 60 min. Error bars represent standard deviation based on two independent samples. The peak values for the different samples are the following: NC = 12.12±0.08, 1 amol = 10.26±0.02, 10 amol = 1.1±0.15 and 100 amol = 1.19±0.05.

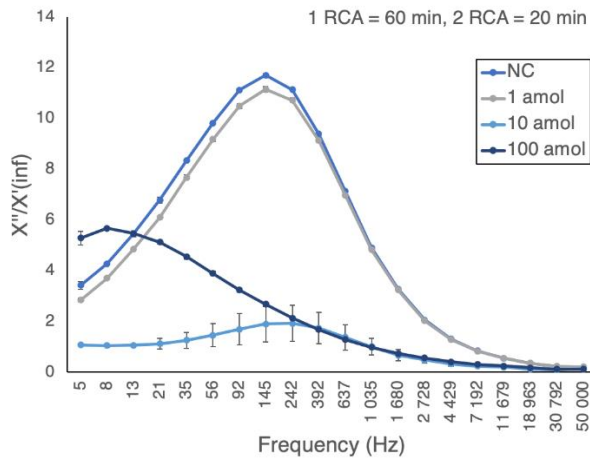


Figure S4. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 4 with the following amplification times: 1RCA = 60 min and 2RCA = 20 min. Error bars represent standard deviation based on two independent samples. The peak values for the different samples are the following: NC = 11.70±0.05, 1 amol = 11.14±0.10, 10 amol = 1.9±0.69 and 100 amol = 2.68±0.07.

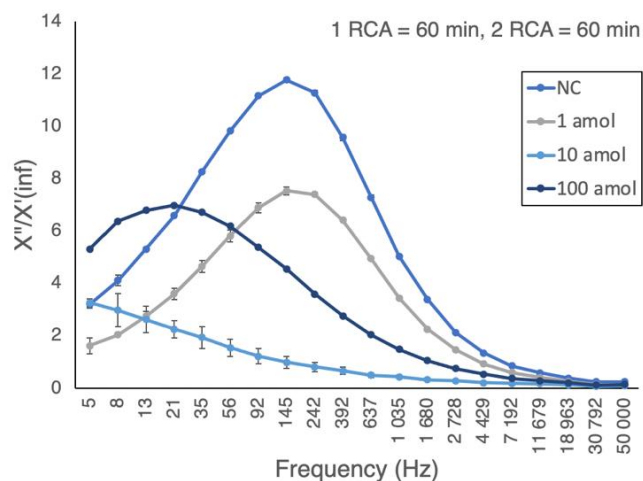


Figure S5. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 4 with the following amplification times: 1RCA = 60 min and 2RCA = 60 min. Error bars represent standard deviation based on two independent samples. The peak values for the different samples are the following: NC = 10.08 ± 0.25 , 1 amol = 7.53 ± 0.15 , 10 amol = 0.99 ± 0.22 and 100 amol = 4.56 ± 0.01 .

Magnetization spectra for C2CA *Salmonella* samples

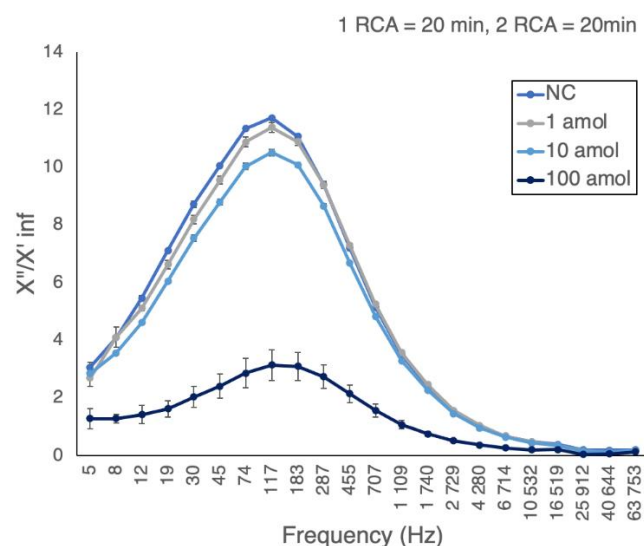


Figure S6. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 5 with the following amplification times: 1RCA = 20 min and 2RCA = 20 min. Error bars represent standard deviation based on two independent samples. The peak values for the different samples are the following: NC = 11.72 ± 0.018 , 1 amol = 11.38 ± 0.16 , 10 amol = 10.51 ± 0.11 and 100 amol = 3.14 ± 0.52 .

Magnetization spectra for C2CA biological samples spiked with synthetic NDV target

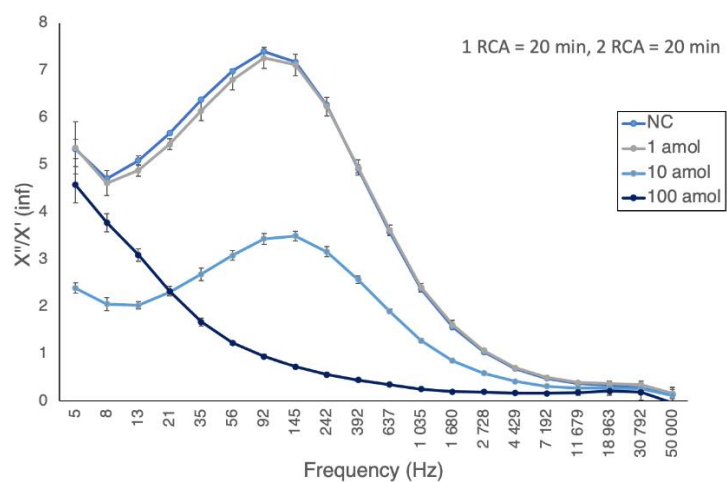


Figure S7. χ''/χ'_{inf} part of the magnetization spectra of the experiments presented in Figure 6 with the following amplification times: 1RCA = 20 min and 2RCA = 20 min. Error bars represent standard deviation based on three independent samples. The peak values for the different samples are the following: NC = 7.39 ± 0.04 , 1 amol = 7.25 ± 0.22 , 10 amol = 3.43 ± 0.10 and 100 amol = 0.96 ± 0.04 .