A PCR REACTOR WITH AN INTEGRATED ALUMINA ISOLATION MEMBRANE

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S1. Inhibitory Effect of the Porous, Alumina Oxide Membrane (AOM)

To determine the effect of the AOM on the PCR's efficiency, we submerged AOM discs of various sizes in a PCR tube and carried out amplification of lambda DNA in a real time PCR thermal cycler (Bio-Rad Chroma 4™, Hercules, California). **Fig. S1A** depicts the fluorescence intensity as a function of time in the absence of the AOM disk and when AOM disks of 1.5, 3, 4.5, and 6 mm diameters were immersed in the tube. **Fig. S1B** depicts the melting curves, attesting to the fact that the same target was amplified in all cases. The PCR products were also subjected to gel electrophoresis (not shown), confirming the data depicted in **Fig. S1B**. As the volume of the alumina oxide membrane increased, the time-derivative of the fluorescent signal decreased. This might be attributed to the alumina membrane inhibiting the PCR efficiency (perhaps by binding enzymes and primers) and possibly it interfering with the fluorescent emission.

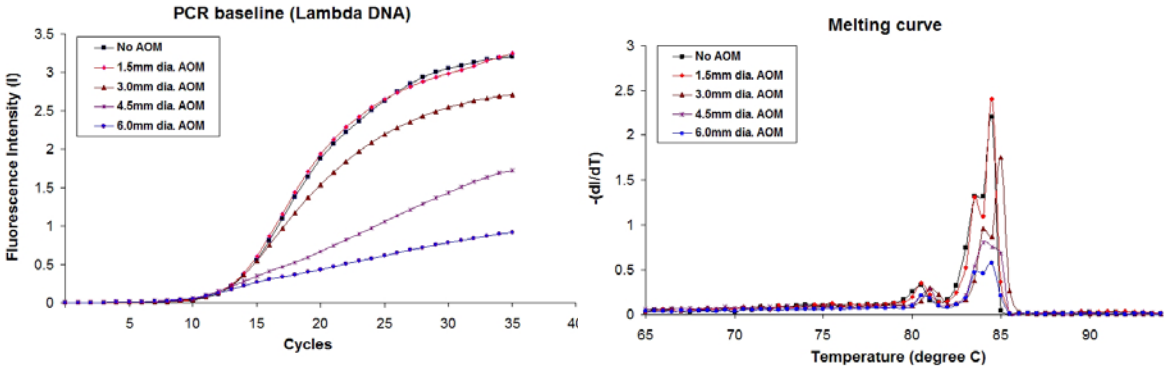

Fig. S1: Fluorescence signal intensity in arbitrary units as a function of the number of cycles (left) and the melting curves (right) in the absence and presence of a 100nm, porous, aluminum oxide disk in the PCR tube.