This document is intended to be a curation of the documents stored in the depository. Documents names are listed in bold followed by a brief description of their contents.

**4PartPotassium\_Calibration\_Spectra\_InTriplicate.xlsx**

This file contains triplicate calibrations for the SDNaNP in 4 different background potassium concentrations (0, 1, 10, 100). This file contains the raw data for Figures 2, S3.

**4PartPotassium\_SDNaNP\_Workup.xlsx**

This file includes raw spectral data from ‘4PartPotassium\_Calibration\_Spectra\_InTriplicate.xlsx’ as well as calculations of the triplicate calibration curves for each potassium concentration, as well as the average calibration with error for each potassium concentration. The raw data and workup are relevant for Figures 2, S3.

**ErrorBarCalibration.csv**

This file contains processed data to generate the calibration curve of the SDNaNP with error bars.

**IonSelectivity.csv**

This document contains the processed data for the selectivity characterization for the SDNaNP. It is relevant for Figure 3.

**MTT\_SDNaNP.csv**

This file contains the data for the toxicity assay; relevant for Figure S4.

**pHCalibrationError.csv**

This document contains the processed data for the calibration of SDNaNP at various pH levels. It is relevant for Figure 3.

**SDNaNP\_zetap.csv**

The file contains the raw distribution of zeta potentials for a sample of SDNaNP.

**StoppedFlow.csv**

The characterization of the response time of the SDNaNP, Fiigure S5, is provided here.

**SD2\_08212023.fid.zip**

This is the collected NMR spectra for the dye, SD2. Please use Mestrenova, or your choice of NMR spectral analysis software, to analyze the file.

**Sodium\_Sensor.zip**

This zip file contains the raw photoacoustic calibration data for Figure 4. Upon extraction, you will obtain separate folders labelled by sodium concentration in mM. Within each of these folders are 4 files that are labelled by the excitation wavelength used to collect the data. The files themselves contain the raw photoacoustic data.