Material and reagents

G. intestinalis Cyst recombinant protein was purchased from Certest-Biotec, Zragosa, SPIAN. N-hydroxysuccinimide (NHS)-activated Sepharose™ bead, Potassium chloride, potassium ferrocyanide ($K_4Fe(CN)_6$), potassium ferricyanide ($K_3Fe(CN)_6$), carbonate buffer, phosphate-buffered saline: pH 7.4 (PBS), sodium chloride (NaCl), magnesium chloride ($MgCl_2$), Acrylamide/bisacrylamide (30% solution), urea, tris-base, boric acid, EDTA disodium dehydrate (to prepare TBE buffer), Tetramethylethylenediamine (TEMED) and ammonium persulfate (APS) , ethanol and methanol were purchased from Sigma Aldrich (St Louis, MO, USA). The ssDNA library, labeled and unlabeled primers for PCR amplification, aptamer sequences were custom-manufactured by Metabion International (Plangg, Germany).

5-Bromo-4-chloro-3-indolyl-β-D-galactopyranoside (X-GaL), and isopropyl β-D-1-thiogalactopyranoside (IPTG) were purchased from Thermo-Fisher Scientific (Waltham, Massachusetts, USA).

Taq plus polymerase, Taq Buffer, DNTPs for PCR and a 100-base pair ladder was bought from ACE Biotech (Riyadh, Saudi Arabia). Agarose powder and 50X Tris base, acetic acid and EDTA buffer (TAE buffer) for performing agarose gel electrophoresis were obtained from Bio-Rad (California, United States). Amicon Ultra-0.5 mL centrifugal desalting filter units with a 3 kDa molecular cut-off filter were acquired from EMD Millipore (Alberta, Canada). The binding buffer which is used during the incubation and washing steps of the aptamer selection is prepared by mixing 50 mM Tris, pH 7.5, 150 mM NaCl and 2 mM $MgCl_2$. TOPO TA Cloning Kit consisting of the pCR2.1-TOPO vector and the E-coli competent cells were purchased from Invitrogen Inc. (New York, USA).

Instrumentation

Auto lab PGSTAT302N (Eco Chemie, The Netherlands) potentiostat/ galvanostat was used tocarry out all electrochemical measurements in this study. The potentiostat was connected to a computer and controlled by a Nova 1.11 software. Screen-printed gold electrodes (SPGE) were obtained from Metrohm DropSens (Llannera, SPAIN), consisting of a standard gold working electrode, an Ag/AgCl reference electrode and a gold counter electrode.

The Polymerase Chain Reaction (PCR) was carried out using a thermocycler purchased from Eppendorf (Westbury, NY, USA). The Fluorescence measurements were carried out using Nano Drop 3300 Fluorospectrometer and the UV quantification measurements were performed using Nano Drop 2000C Spectrophotometer purchased from Fisher Scientific, Canada.

Figure S1:

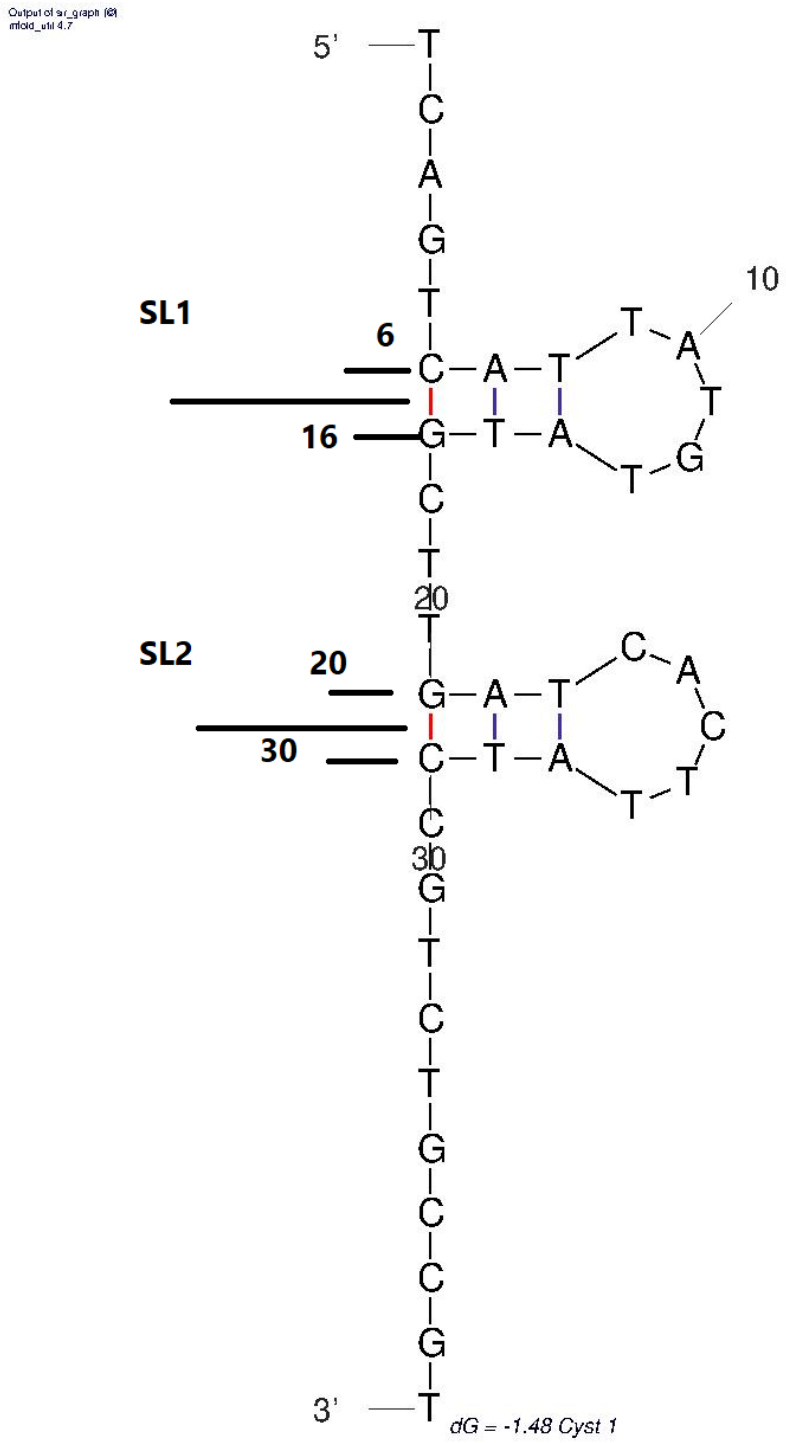

Figure S1: Secondary structure model of Cyst 1 aptamer with the full sequence predicted by Mfold software.

Table S.1: Protein amount before and after immobilization on the NHS-modified beads. Measurements were performed by using a UV-spectrophotometer nanodrop at a wavelength of 280 nm.

Step	Before immobilization	Washing 1	Washing 2	Washing 3	Washing 4
Protein amount	2 mg	0.7	0.1	0.012	0.004