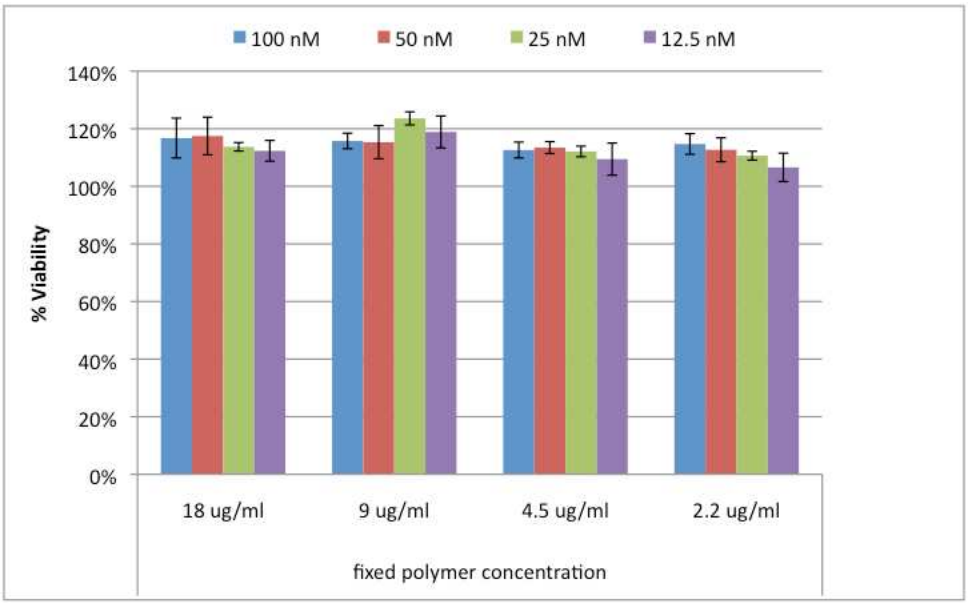
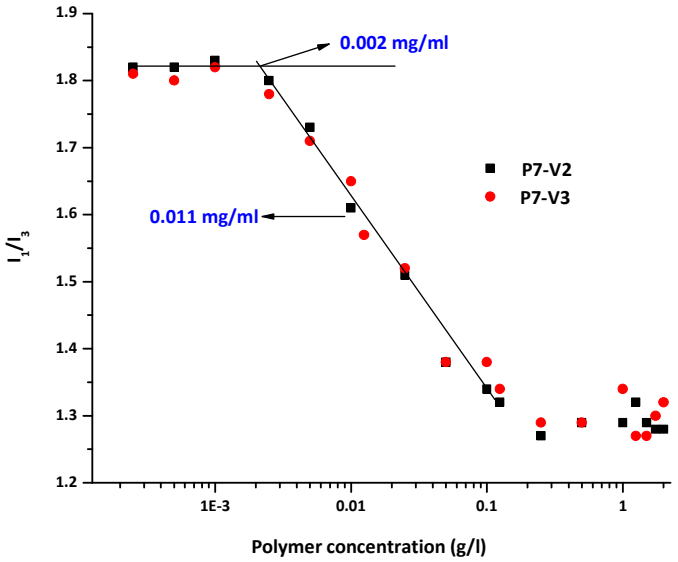
Figure S-1. Cell viability as a function of polymer concentration and charge ratio (+/-)



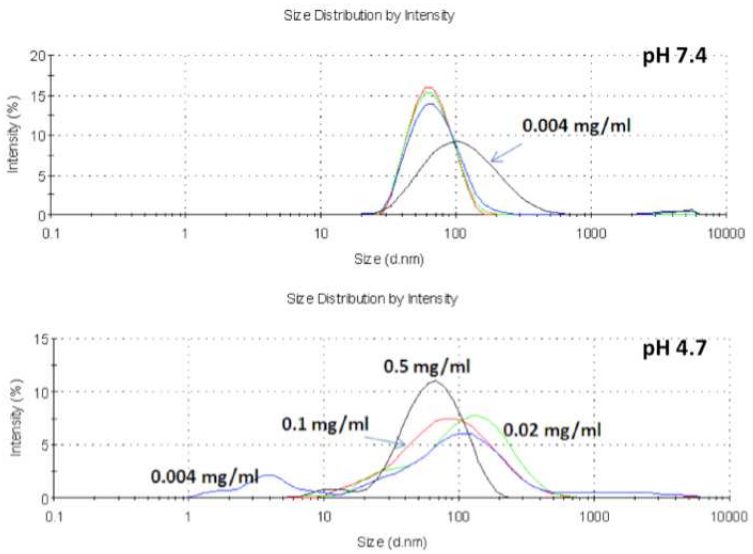
Cytotoxicity of diblock copolymer and siRNA/polymer complex was determined by assaying for cell metabolic activity. HeLa cells were seeded in 96-well plates at a density of 8000 cells/cm^2 and allowed to adhere over night. Complexes were formed by the addition of polymer (0.1 mg/mL stock solutions) to GAPDH siRNA (50 µM) to attain a concentration of 25 nM siRNA/well (100 µL volume). Complexes were added to wells in triplicate. After cells had been incubated for 24 h with the polymer/complexes, 10ul of Cell Titer Blue (Promega, Madison WI) reagent was added to each well. The cells were incubated at 37C for 120 min for color formation, the fluorescence (560/590nm) was determined according to the manufacturer's instructions. Percent viability is expressed as function of 1% Triton X-100 treated cells (control for 0% viability).

Figure S-2. Critical micelle concentration (CMC) determination via pyrene fluorescence



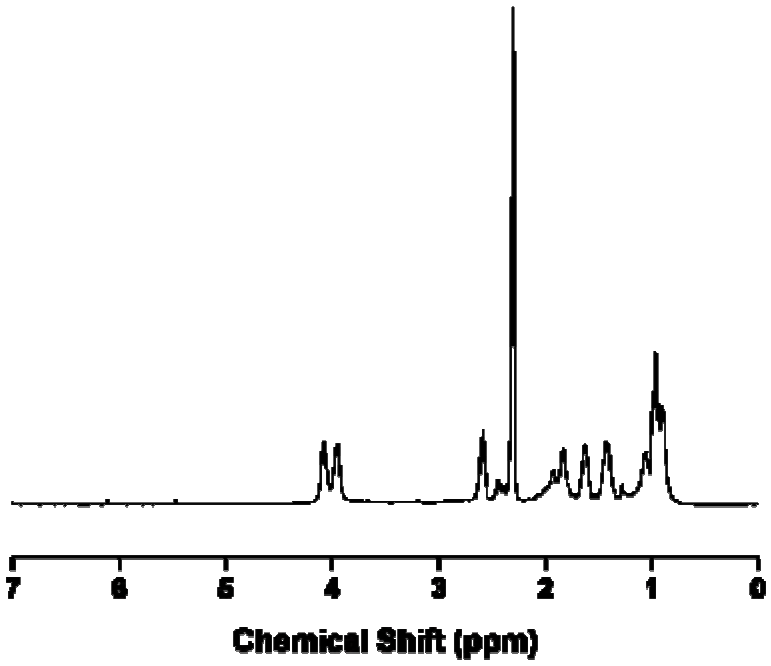
The formation of polymer micelles with or without siRNA was confirmed by a fluorescence probe technique using pyrene ($C_{16}H_{10}$, MW = 202), in which the partitioning of pyrene into the micelle core was determined using the ratio of 2 emission maxima of the pyrene spectrum. The fluorescence emission spectrum of pyrene in the polymer micelle solution was measured from 300 to 360 nm using a fixed excitation wavelength of 395 nm with a constant pyrene concentration of 6 x 10^{-7} M. The polymer was varied from 0.001% to 20% (w/w) with or without 100 nM siRNA. The spectral data were acquired using a Varian fluorescence spectrophotometer. All fluorescence experiments are carried out at 25°C. The critical micelle concentration (CMC) was determined by plotting the intensity ratio I_{336}/I_{333} as a function of polymer concentration. CMC values were calculated from the low concentration break point to be approximately 2 ug/ml (see Figure S-1 in Supporting Information).

Figure S-3. pH dependence of the critical micelle concentration (CMC) determined by DLS dilution method



Dynamic light scattering assay. The stability of polymer micelles to incremental dilution was measured by dynamic light scattering (DLS). Particle size was measured by DLS over a 5-fold range of serial dilutions with PBS buffer from 1 mg/ml to 1.6 ug/ml. Particle sizes of about 45 nm were stable down to a concentration of about 10ug/ml with instability below about 5 ug/ml (the CMC) where individual polymer chains appear to form higher MW polydisperse aggregates and lower particle sizes including monomer chains

Figure S-4. ^{1}**H NMR Analysis of pDMAEMA and diblock copolymers**



polyDMAEMA and the diblock copolymers were dissolved in D2O or CDCl3 at 3 wt%, respectively, and NMR spectroscopy performed on a Bruker 499 DRX. Diblock copolymer composition is determined from the using resonances associated with the DMAEMA methylene (δ= 2.5 – 2.68) methylene, the combined ester methylenes (δ= 3.83 – 4.2), and the entire backbone region (δ= 0.7 – 2.1). By also utilizing the Mn of the pDMAEMA and diblock copolymers, determined from GPC, the relative moles monomer for the diblock components (DMAEMA, butyl methacrylate, and propylacrylic acid, nD, nB, nP, respectively) can be calculated.

Figure S-5. Size Exclusion Chromatography (SEC) for the pol(DMAEMA) macrocCTA and the corresponding diblock copoymer