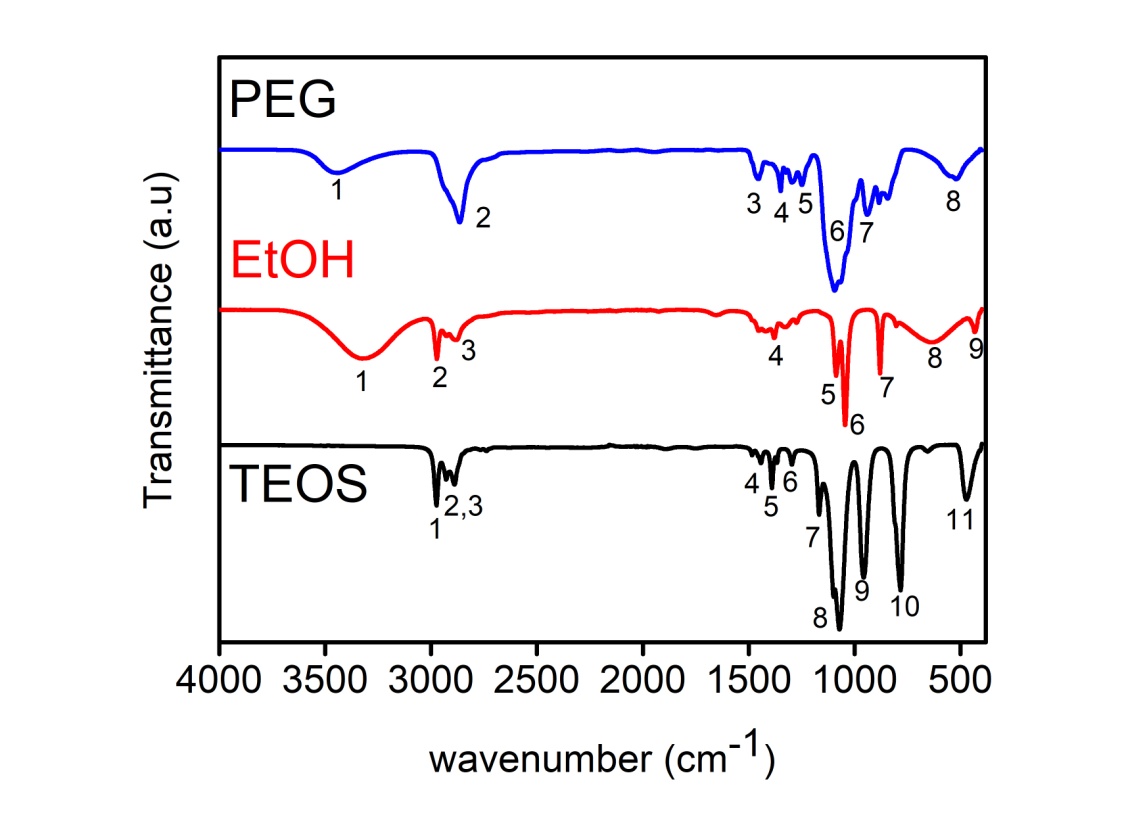
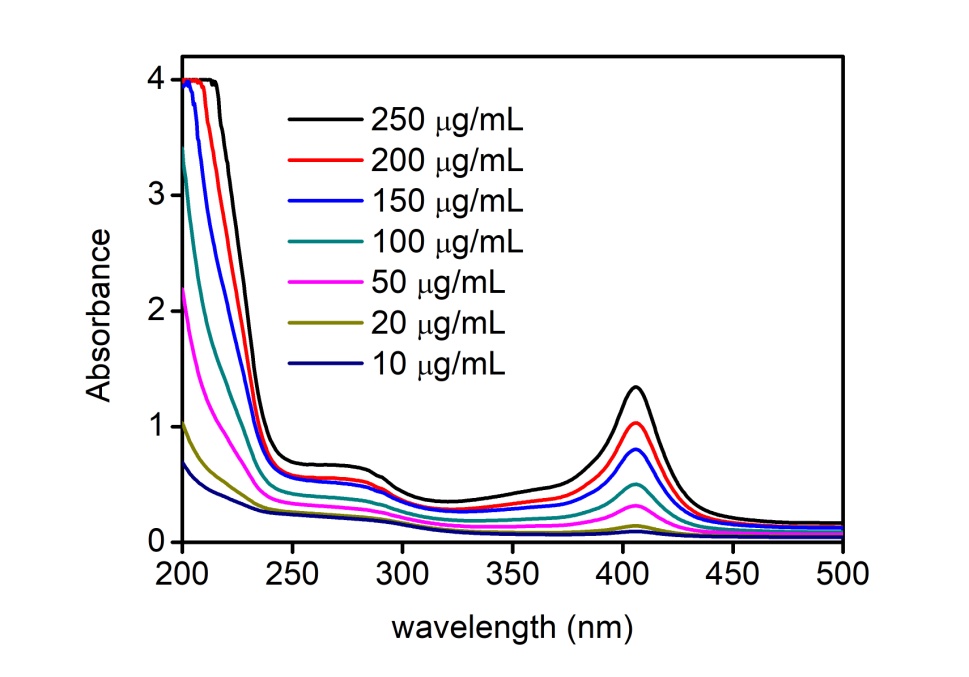
**Supplementary Information**

**Sol-Gel Derived Silica/Polyethylene Glycol Hybrids as Potential Oligonucleotide Vectors**

**Derya Kapusuz**

****

**Fig S1.** FTIR spectra of a) TEOS, b) PEG and c) Ethanol (EtOH) in 4000-400 cm-1 wavenumber range.



**Fig S2.** UV-Vis spectra of HG solutions at various concentrations (10-250 µg/mL)

**Table SI.** FTIR absorbance bands

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TEOS** | | | **EtOH** | | | **PEG** | | |
| **#** | **Band** | **Assignment** 1,2 | **#** | **Band** | **Assignment**1,2 | **#** | **Band** | **Assignment**2–5 |
| **1** | 2976 | -OH stretching | **1** | 3320 | -OH stretching | **1** | 3450 | -OH stretching |
| **2** | 2930 | Asym. C-H stretching (CH3) | **2** | 2975 | Asym. C-H stretching (CH3) | **2** | 2860 | Asym. C-H stretching (CH2) |
| **3** | 2888 | Asym. C-H stretching (CH2) | **3** | 2880 | Asym. C-H stretching (CH2) | **3** | 1455 | Asym. C-H bending |
| **4** | 1445 | Asym. C-H bending  (CH3) | **4** | 1380 | Sym. C-H bending | **4** | 1350 | C-H bending |
| **5** | 1390 | Sym. C-H bending | **5** | 1085 | Asym. C-O stretching | **5** | 1250 | Alcohol C-O stretching |
| **6** | 1290 | C-H twist  (CH2) | **6** | 1040 | Sym. C-O stretching | **6** | 1090 | Sym. C-O-C ether stretching |
| **7** | 1160 | C-H rocking (CH3) | **7** | 880 | CH3/CH2 def. | **7** | 935 | C-C stretching |
| **8** | 1075 | Sym. C-O stretching | **8** | 630 | **-** | **8** | 530 | - |
| **9** | 970 | C-H rocking (CH3) | **9** | 430 | O-C-C def. |  | | |
| **10** | 790 | Asym. Si-O-Si stretching,  C-H rocking (CH2) |  | | |
| **11** | 475 | O-C-C def. |  | | |

*Asym: asymmetric; Sym: symmetric*

**References**

1. M. C. Matos, L. M. Ilharco, and R. M. Almeida: The evolution of TEOS to silica gel and glass by vibrational spectroscopy. *J. Non. Cryst. Solids* **147**–**148**, 232 (1992).

2. F. Rubio, J. Rubio, and J. L. Oteo: A FT-IR Study of the Hydrolysis of Tetraethylorthosilicate[,*Spectrosc. Lett.* **31**, 199 (1998).

3. N. A. Alcantar, E. S. Aydil, and J. N. Israelachvili: Polyethylene glycol-coated biocompatible surfaces. *J. Biomed. Mater. Res.* **51**, 343 (2000).

4. A. R. Polu and R. Kumar: Impedance spectroscopy and FTIR studies of PEG - Based polymer electrolytes. *E-Journal Chem.* **8**, 347 (2011).

5. Khairuddin, E. Pramono, S. B. Utomo, V. Wulandari, A. W. Zahrotul, and F. Clegg: FTIR studies on the effect of concentration of polyethylene glycol on polimerization of Shellac. *J. Phys. Conf. Ser.* **776**, 012053 (2016).