

Supplementary Information:

**Determination of Spectral Markers of Cytotoxicity and Genotoxicity Using
Raman Microspectroscopy: Cellular Responses to Polyamidoamine
Dendrimers**

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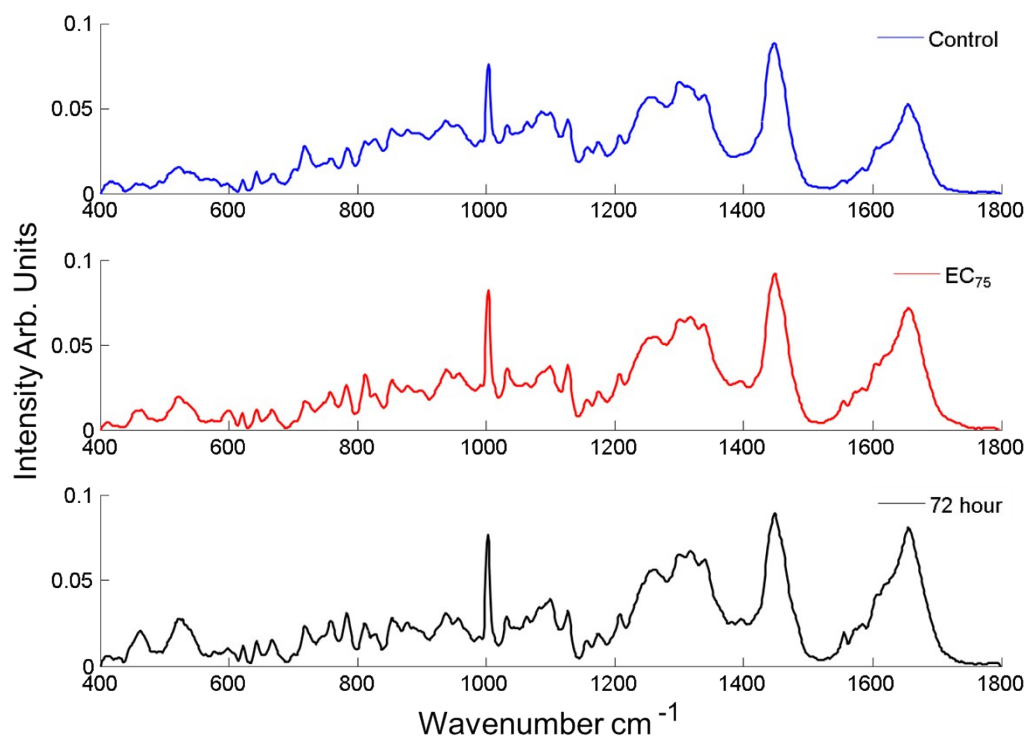


Figure S1. Mean spectra of cytoplasm from control cells and exposed cells (PAMAM dendrimers) as a function of dose (24 hour exposure to EC₇₅) and time (72 hour exposure to EC₂₅).

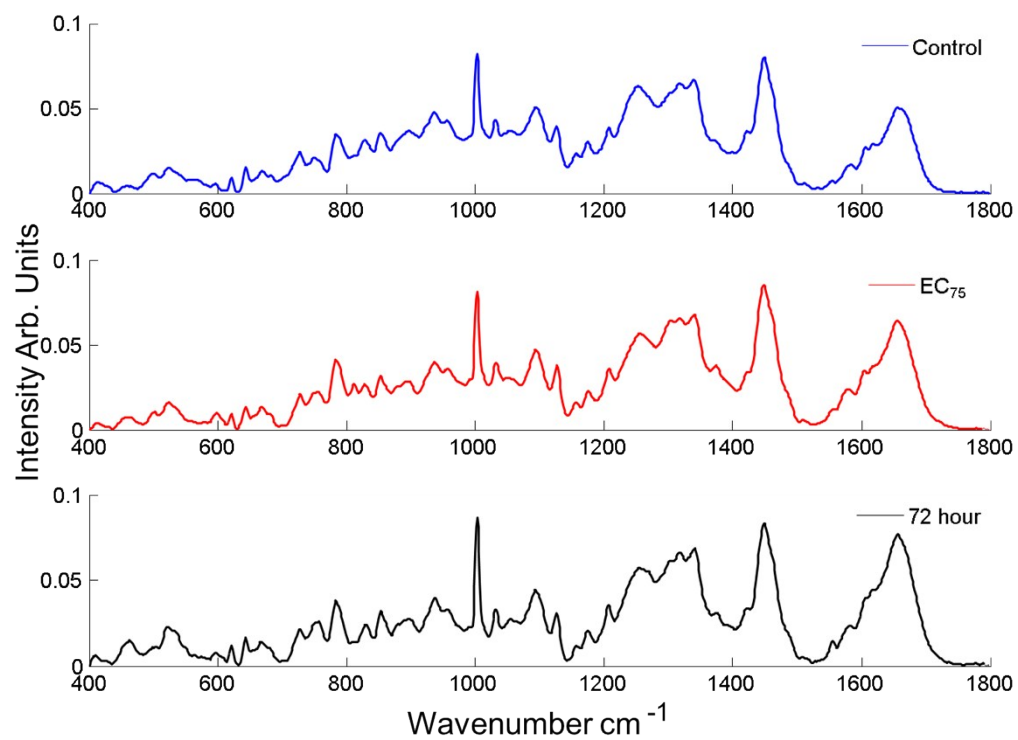


Figure S2. Mean spectra of nucleus from control cells and exposed cells (PAMAM dendrimers) as a function of dose (24 hour exposure to EC₇₅) and time (72 hour exposure to EC₂₅).

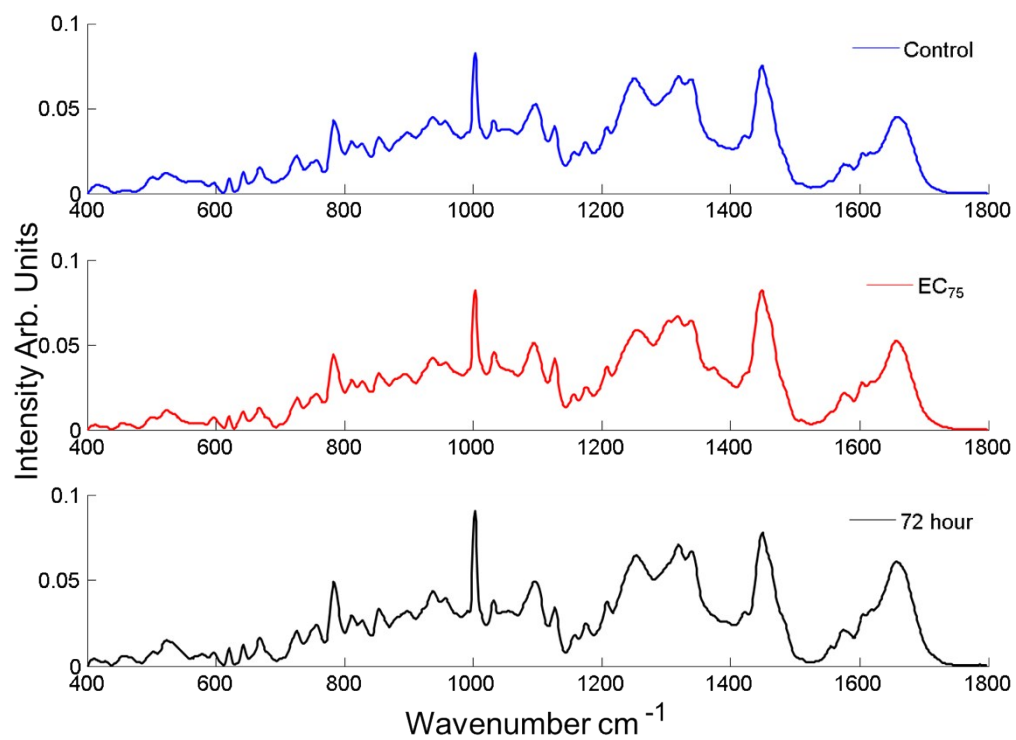


Figure S3. Mean spectra of nucleolus from control cells and exposed cells (PAMAM dendrimers) as a function of dose (24 hour exposure to EC₇₅) and time (72 hour exposure to EC₂₅).

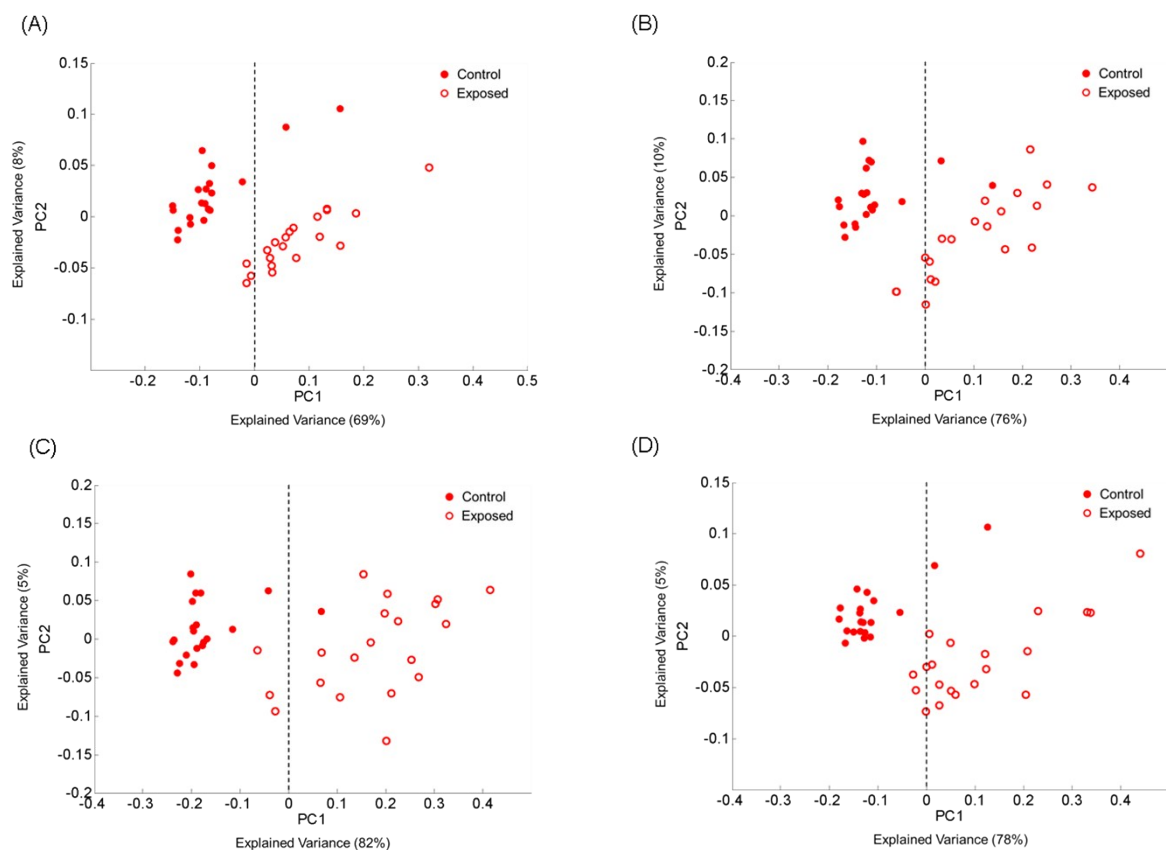


Figure S4. Scatter plots of the PCA of spectra corresponding to cytoplasm of A549 cells (control) and A549 cells exposed to the EC₁₀ (A), EC₂₅ (B), EC₅₀ (C) and EC₇₅ (D) concentrations of PAMAM-G5 dendrimers after 24 h. Each graph indicates a pairwise comparison of exposed cells with corresponding control for 24 hour. Unexposed cells and exposed cells are indicated with closed circles and open circles, respectively. '0' line for PC1 is indicated by black dashed outlines.

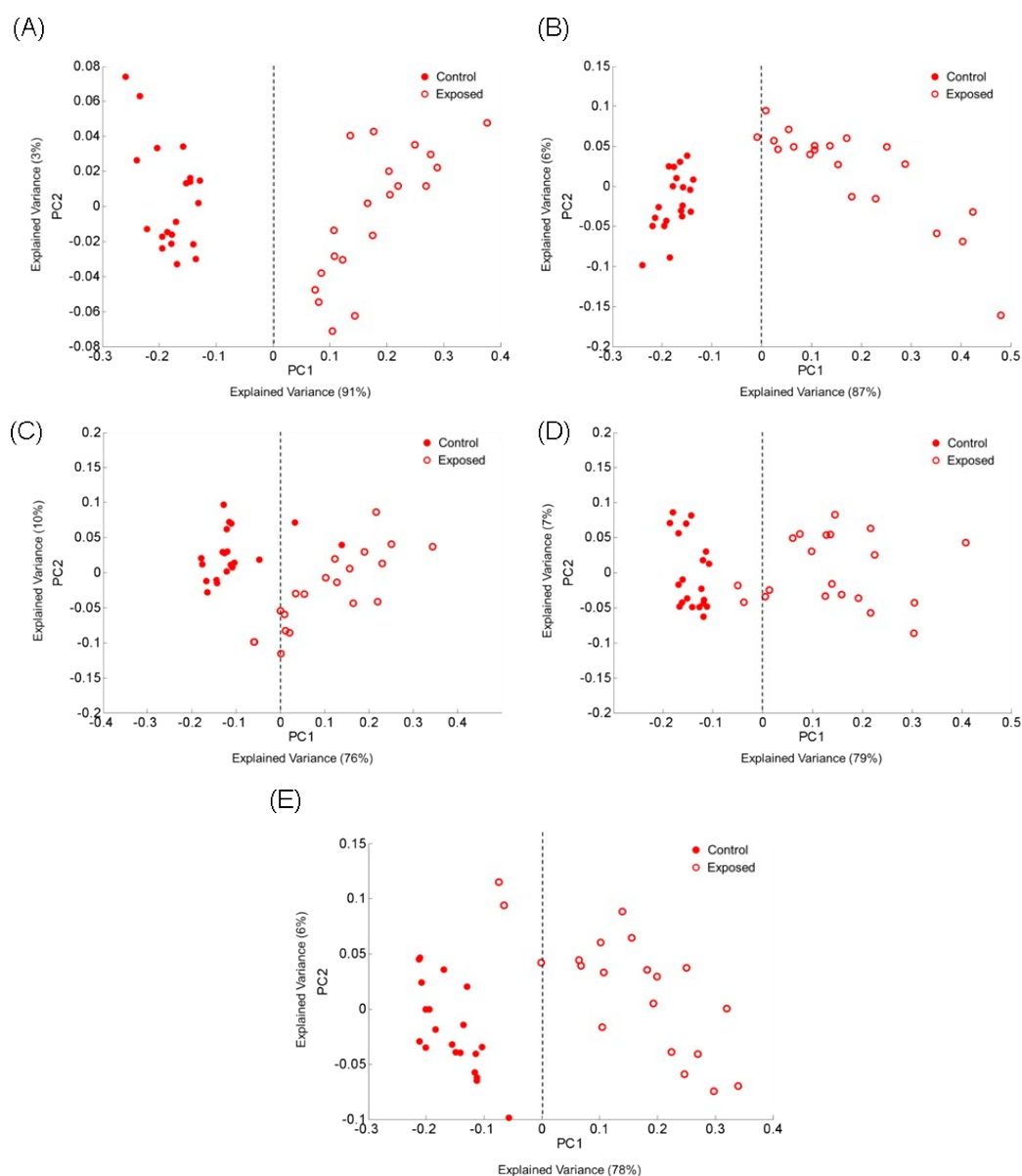


Figure S5. Scatter plot of the PCA of spectra corresponding to cytoplasm of A549 cells (control) and A549 cells exposed to the EC₂₅ concentration of PAMAM-G5 dendrimers after 4 (A), 8 (B), 24 (C), 48 (D) and 72 hour. Each graph indicates a pairwise comparison of exposed cells with corresponding control for extending exposure times. Unexposed cells and exposed cells are indicated with closed circles and open circles, respectively. ‘0’ line for PC1 is indicated by black dashed outlines.

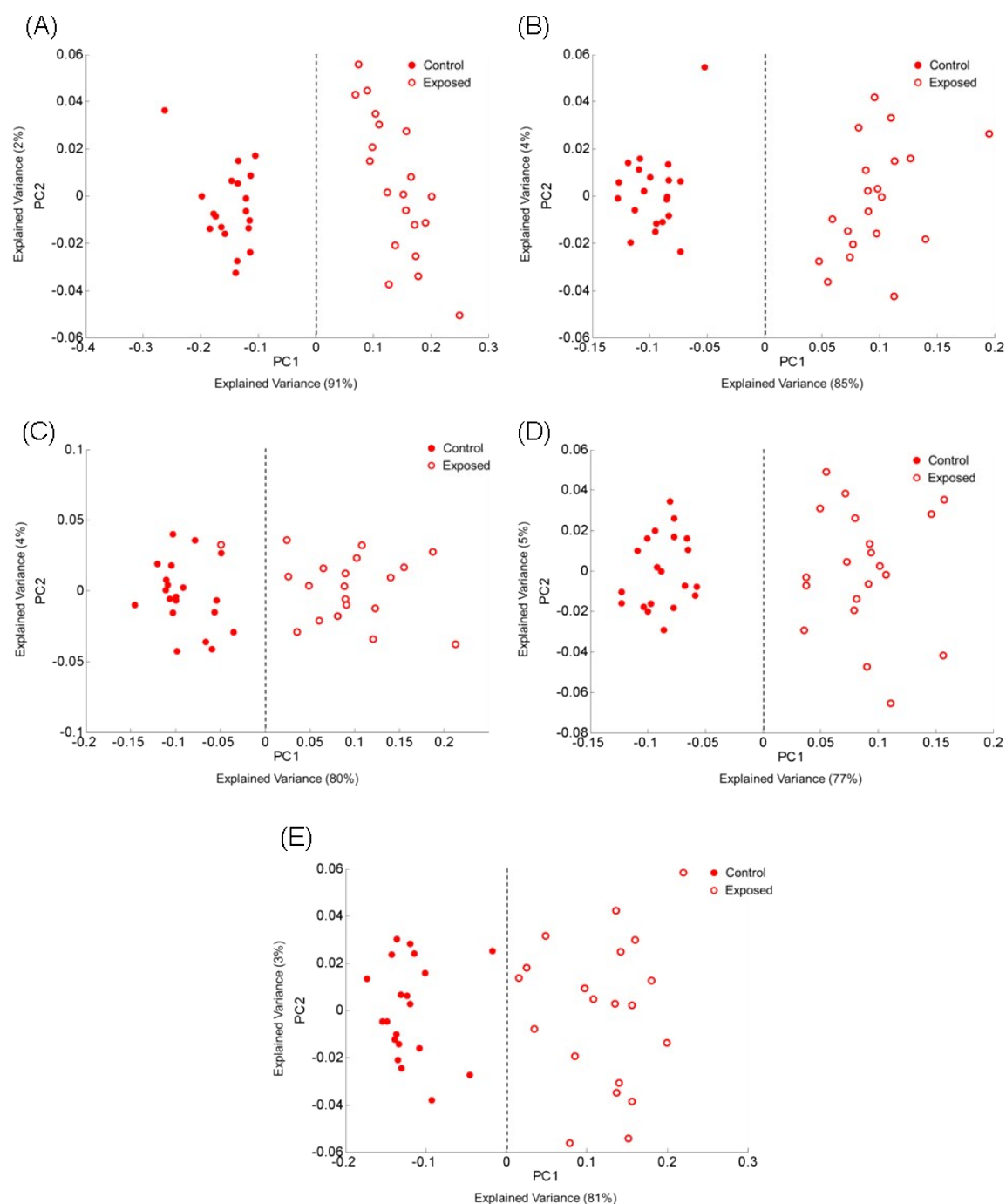


Figure S6. Scatter plot of the PCA of spectra corresponding to nucleus of A549 cells (control) and A549 cells exposed to the EC_{25} concentration of PAMAM-G5 dendrimers after 4 (A), 8 (B), 24 (C), 48 (D) and 72 hour. Each graph indicates a pairwise comparison of exposed cells with corresponding control for extending exposure times. Unexposed cells and exposed cells are indicated with closed circles and open circles, respectively. ‘0’ line for PC1 is indicated by black dashed outlines.

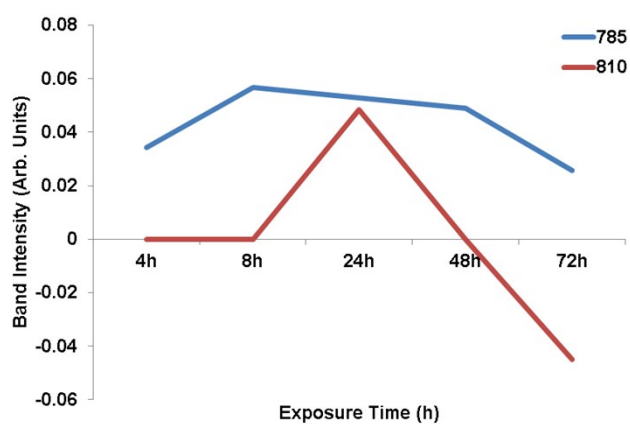


Figure S7. Band intensities of 785 (nucleic acids) and 810 (RNA) cm^{-1} bands calculated from PC1 from pairwise PCA of nucleus of PAMAM-G5 exposed cells and corresponding controls from 4 to 72 h.

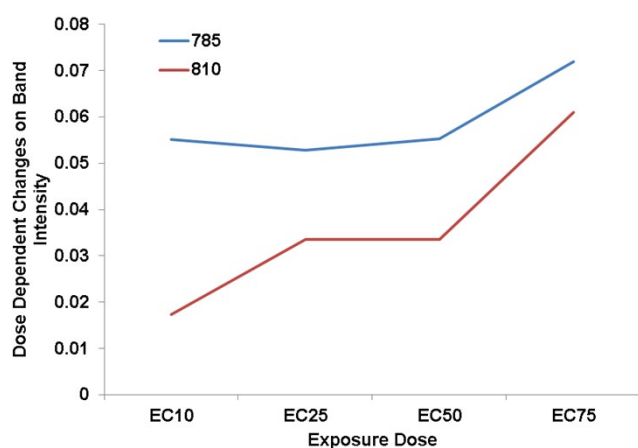


Figure S8. Band intensities of 785 (nucleic acids) and 810 (RNA) cm^{-1} bands calculated from PC1 from pairwise PCA of nucleus of exposed cells and corresponding controls.

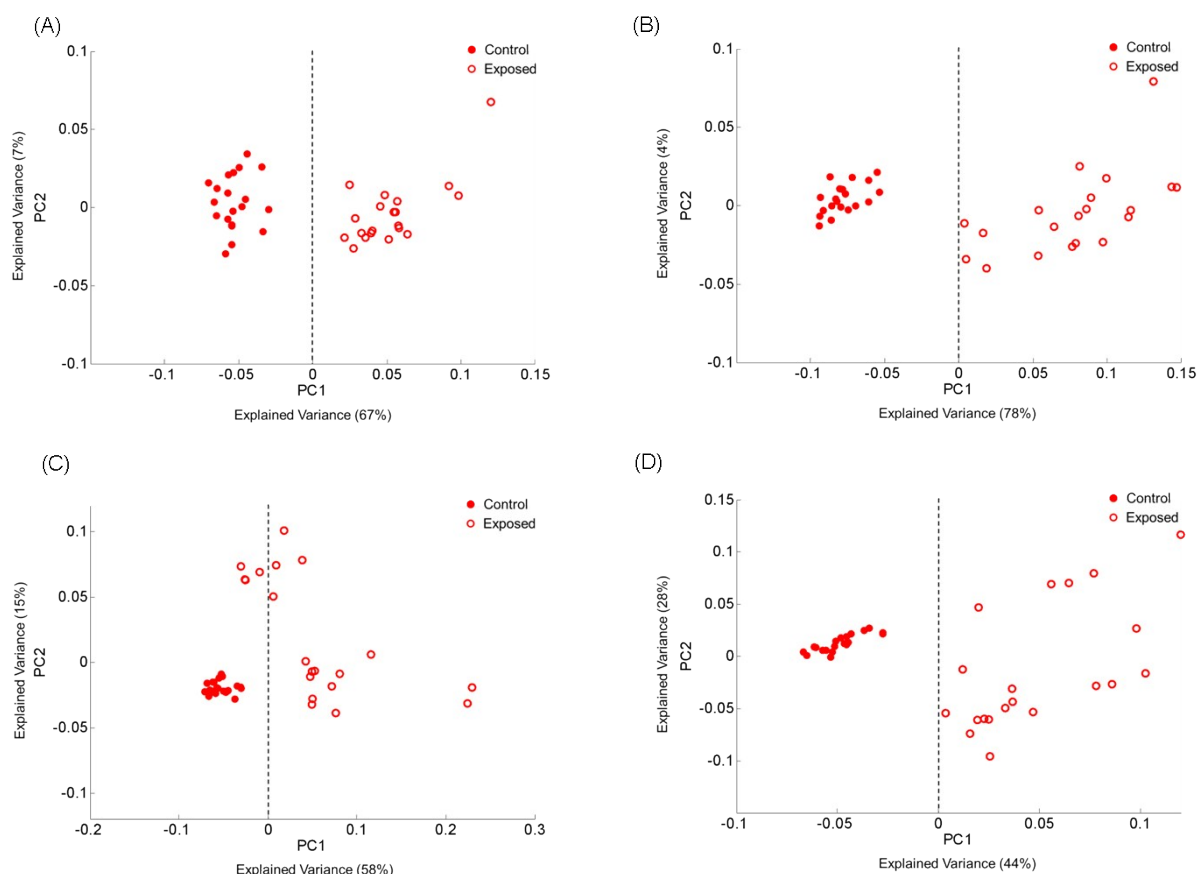


Figure S9. Scatter plots of the PCA of spectra corresponding to nucleolus of A549 cells (control) and A549 cells exposed to the EC₁₀ (A), EC₂₅ (B), EC₅₀ (C) and EC₇₅ (D) concentrations of PAMAM-G5 dendrimers after 24 h. Each graph indicates a pairwise comparison of exposed cells with corresponding control for 24 hour. Unexposed cells and exposed cells are indicated with closed circles and open circles, respectively. ‘0’ line for PC1 is indicated by black dashed outlines.

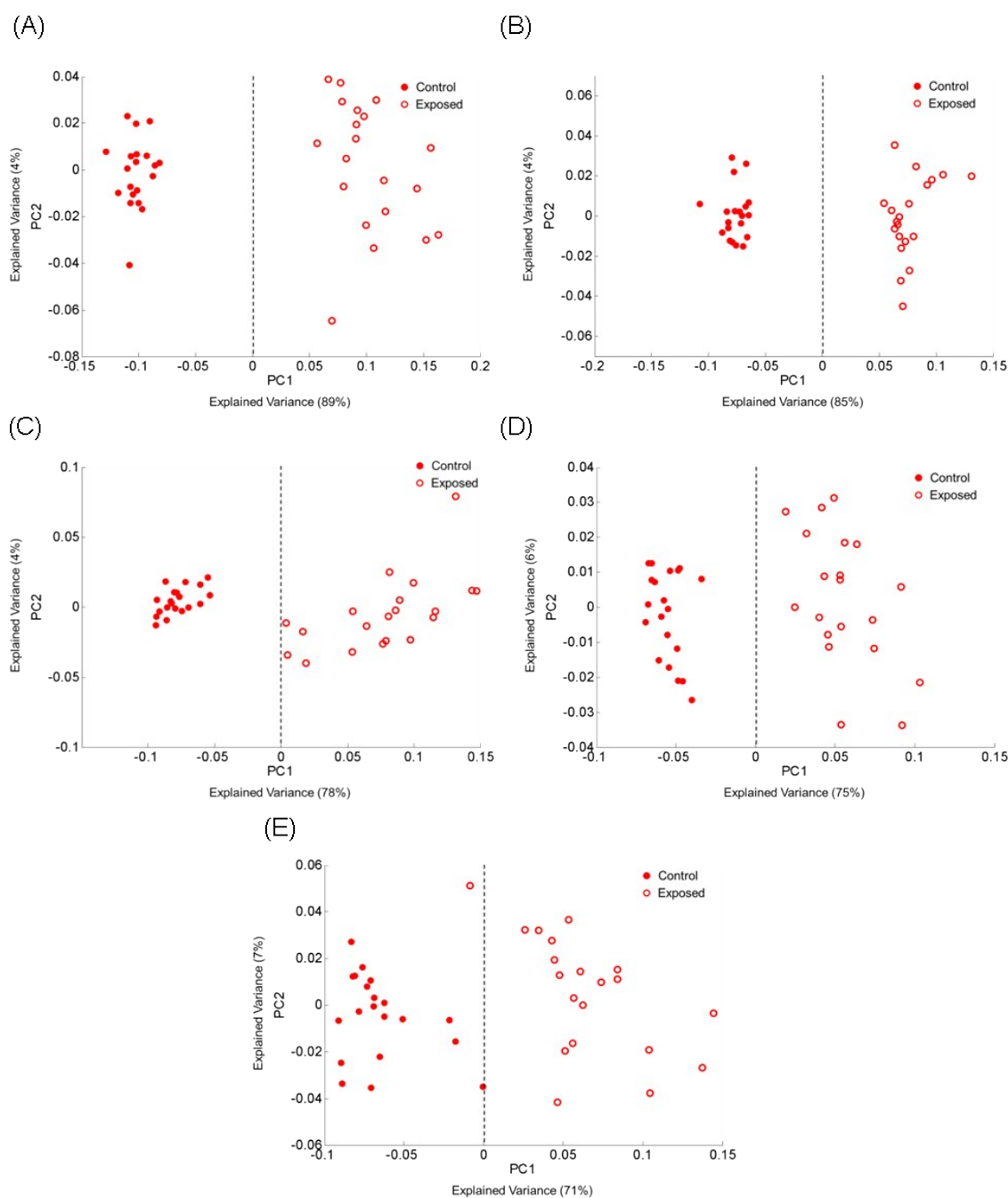


Figure S10. Scatter plot of the PCA of spectra corresponding to nucleolus of A549 cells (control) and A549 cells exposed to the EC₂₅ concentration of PAMAM-G5 after 4 (A), 8 (B), 24 (C), 48 (D) and 72 hour. Each graph indicates a pairwise comparison of exposed cells with corresponding control for extending exposure times. Unexposed cells and exposed cells are indicated with closed circles and open circles, respectively. ‘0’ line for PC1 is indicated by black dashed outlines.