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List of Abbreviations and Symbols

| | |
|--------------------|---|
| DNA | Deoxyribonucleic Acid |
| RNA | Ribonucleic Acid |
| α | Alpha |
| β | Beta |
| BSA | Bovine Serum Albumin |
| CQDs | Carbon Quantum Dots |
| CNTs | Carbon Nanotubes |
| D | Dimensional |
| LEDs | Light Emitting Diodes |
| LASER | Light Amplification By Stimulated Emission Of Radiation |
| GQDs | Graphene Quantum Dots |
| CNDs | Carbon Nanodots |
| PDs | Polymer Dots |
| PL | Photoluminescence |
| UV | Ultraviolet |
| nm | Nanometer |
| FCNs | Fluorescent Carbon Nanodots |
| HOMO | Highest Occupied Molecular Orbital |
| LUMO | Lowest Occupied Molecular Orbital |
| IC ₅₀ | Half Maximum Inhibitory Concentration |
| UCPL | Up Conversion Photoluminescence |
| SAM | Self-assembled Monolayer |
| QY | Quantum Yield |
| QD | Quantum Dots |
| PEG | Polyethylene Glycol |
| PEI | Polyethylenimine |
| PAA | Polyacrylic Acid |
| DAPI | 4',6-Diamidino-2-Phenylindole |
| ROS | Reactive Oxygen Species |
| NaCl | Sodium Chloride |
| HAuCl ₄ | Tetrachloroauric Acid |
| -COOH | Carboxylic |
| C=O, C-O | Carboxyl, Carbonyl |
| C-H, C=C | Carbon Bonds |
| GLU | B-Glucuronidase |
| CdSe | Cadmium Selenide |
| ZnSe | Zinc Selenide |
| M | Molar |
| DOX | Doxorubicin |
| BBB | Blood-Brain Barrier |
| TJ | Tight Junction |
| PtNPs | Platinum Nanoparticles |
| GO | Grapheme Oxide |

| | |
|------------------|--|
| TE | Tissue Engineering |
| PBH | Protein Based Hydrogels |
| PPy- PEI | Polypyrrole-Polyethyleneimine |
| PACG | Poly(N-Acryloyl 2-Glycine) |
| Mel | Melatonin |
| MW | Molecular Weight |
| Da | Dalton |
| TiO ₂ | Titanium Oxide |
| UA | Uric Acid |
| AA | Ascorbic Acid |
| HX | Hypoxthenene |
| DD | Double Distilled |
| MTT | 3-(4, 5-Dimethylthiazolyl-2)-2,5-Diphenyltetrazolium Bromide |
| PNDs | Protein Nanodots |
| GCE | Glassy Carbon Electrode |
| CV | Cyclic Voltammetry |
| SWV | Square Wave Voltammetry |
| Hz | Hertz |
| mM | Milimolar |
| μM | Micromolar |
| DI | Deionized water |
| MPNDs | Melatonin Loaded Protein Nanodots |
| QS | Quinine Sulfate |
| DMEM | Dulbecco's Modified Eagle Medium |
| MEM | Minimum Essential Medium |
| NEAA | Non-Essential Amino Acid |
| ANOVA | One-Way Analysis Of Variance |
| CMOS | Complementary Metal Oxide Semiconductor |
| NIR | Near Infra-Red |
| Vis | Visible |
| PMT | Photomultiplier Tube |
| FTIR | Fourier Transform Infrared Spectroscopy |
| KBr | Potassium Bromide |
| HeNe | Helium-Neon |
| MCT | Multiple Cathode Tubes |
| NIBS | Non-Invasive Back Scatter |
| XPS | X-Ray Photoelectron Spectroscopy |
| eV | Electron Volt |
| ESCA | Electron Spectroscopy For Chemical Analysis |
| Al | Aluminum |
| Mg | Magnesium |
| SAXS | Small Angle X-Ray Scattering |
| Å ⁰ | Angstrom |
| TEM | Tunneling Electron Microscope |
| λ | Wavelength |
| E | Energy |
| mo | Mass of Electron |
| c | Speed Of Light |
| LaB ₆ | Lanthanum Hexaboride |

| | |
|-------------------------------|----------------------------------|
| CCD | Charge Coupled Device |
| SEM | Scanning Electron Microscope |
| EDX | Energy Dispersive X-Ray Analysis |
| % | Percentage |
| °C | Degree Celsius |
| Rad | Radian |
| AgCl ₂ | Silver Chloride |
| KCl | Potassium Chloride |
| ZnO | Zinc Oxide |
| H ₂ O ₂ | Hydrogen Peroxide |
| G' | Storage Modulus |
| G'' | Viscous Modulus |
| SC | Stratum Corneum |
| Tep | Epidermis |
| Ed | Perivascular Edema |
| pM | Picomolor |
| C | Carbon |
| N | Nitrogen |
| O | Oxygen |
| AuNPs | Gold Nanoparticles |
| PLL | Poly-L-Lysine |
| ITO | Indium Titanium Oxide |
| <i>f</i> | Frequency |
| LOD | Limit Of Detection |
| RSD | Relative Standard deviation |