|                 | NI             | Λ NI Δ        | DΛ               | $RTz^{\scriptscriptstyle{T}}$                    |                                                            |
|-----------------|----------------|---------------|------------------|--------------------------------------------------|------------------------------------------------------------|
|                 | IV             | M 1 N         |                  | \n   Z                                           |                                                            |
|                 | 7              | he gold nanor | particle for nan | otechnology                                      |                                                            |
| Certificate     | of Analys      | sis           |                  |                                                  |                                                            |
| 301 till out 3  | or 7 wilding c |               |                  |                                                  |                                                            |
| Product Family  | ,              | Accurate S    | nherical Col     | d Nanoparticles                                  |                                                            |
| Product Numb    |                | A11-5-CIT-    |                  | u Marioparticies                                 |                                                            |
| Lot #           |                | SPEC          | Diriro           |                                                  |                                                            |
| Form            |                | Gold Colloi   | d                |                                                  |                                                            |
| Capping Agent   | t              | Citrate       | u .              |                                                  |                                                            |
| Solution        |                | 18MEG DI      | \/\/ater         |                                                  |                                                            |
| Source          |                | E2735         | VVater           |                                                  |                                                            |
| Course          |                | LETOO         |                  |                                                  |                                                            |
| D               |                | measured      | TEM,             | _                                                |                                                            |
| Diameter        | nm             | average       | UVVIS            | 5                                                |                                                            |
| SPR Abs         | OD             | measured      | UV/VIS           | 1.1                                              |                                                            |
| PDI             | stddev/size    | measured      | TEM              | 6%                                               |                                                            |
| SPR Peak        | nm             | measured      | UV/VIS           | 514                                              |                                                            |
| pH              | 11111          | measured      | Orion            | 7                                                |                                                            |
| Zeta Potential  | mV             | measured      | DLS              | -37                                              |                                                            |
| Concentration   | nps/mL         | calc          | BLO              | 4.37E+13                                         |                                                            |
| Wt. conc.       | mg/mL          | calc          |                  | 0.06                                             |                                                            |
| ppm             | mg/mz          | calc          |                  | 55                                               |                                                            |
| Wt. %           | %              | calc          |                  | 0.0055%                                          |                                                            |
| Molarity        | uM             | calc          |                  | 7.28E-02                                         |                                                            |
| Molar Ext.      | M-1cm-1        | calc          |                  | 1.51E+07                                         |                                                            |
| Citrate         | mM             | measured      |                  | 5                                                |                                                            |
| Volume          | mL             | measured      |                  | 5                                                |                                                            |
| 7 0.00          |                |               |                  |                                                  |                                                            |
| Date            |                |               |                  | 10/4/2019                                        |                                                            |
| Exp Date        |                |               |                  | 4/1/2020                                         |                                                            |
|                 |                |               |                  |                                                  |                                                            |
| Alex Schoen, I  | Manager        |               |                  |                                                  |                                                            |
| Quality Contro  |                |               |                  |                                                  |                                                            |
| _               |                |               |                  | 4.4                                              |                                                            |
| Absorbance (OI  | ))             |               | 1                |                                                  |                                                            |
|                 |                |               |                  |                                                  |                                                            |
| 1.25            |                |               |                  |                                                  | A Control of the                                           |
| 1               |                |               |                  |                                                  |                                                            |
| 0.75            | lack           |               |                  |                                                  |                                                            |
| cm)             | <b>\</b>       |               |                  |                                                  | and the state of the                                       |
| 0.5 OD (1cm)    |                |               |                  |                                                  |                                                            |
| 0.25            |                |               |                  |                                                  |                                                            |
| 0               |                |               |                  | The Property of                                  | Set March                                                  |
| 100 EDE         | 00,00          | 00,000        | 00               | The state of                                     | 11. 第二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十二十                |
| K 50            | 6 7 8          | 00 100        |                  | 5 E2735.jpg                                      | and the they then                                          |
| Wavelength (nm) |                |               | Cal:<br>2:59     | 5 K2735.jpg<br>0.262055 mm/pix<br>:10 p 08/20/14 | 100 nm<br>HV=80.0kV<br>Diroct Mag: 52000x<br>Philips CM100 |
|                 |                |               |                  |                                                  | Philips CM100                                              |