|                    |             | he gold nanopa   |                    | RTz <sup>TM</sup> |  |
|--------------------|-------------|------------------|--------------------|-------------------|--|
| Certificate        | of Analys   | vic.             |                    |                   |  |
| Certificate        | OI Allalys  | 013              |                    |                   |  |
| Product Family     | ,           | Accurate Sn      | herical Gold       | Nanoparticles     |  |
| Product Number     |             | A11-20-CIT-      |                    | rvarioparticies   |  |
| Lot #              |             | SPEC             | DII 1 20           |                   |  |
| Form               |             | Gold Colloid     |                    |                   |  |
| Capping Agent      |             | Citrate          |                    |                   |  |
| Buffer             |             | 18MEG DI water   |                    |                   |  |
| Source             |             | SPD513N          |                    |                   |  |
|                    |             |                  | TEM DIG            |                   |  |
| Diameter           | nm          | measured average | TEM, DLS,<br>UVVIS | 20                |  |
| SPR Abs            | OD          | measured         | UV/VIS             | 1                 |  |
| PDI                | stddev/size |                  | TEM                | 4%                |  |
| SPR Peak           | nm          | measured         | UV/VIS             | 520               |  |
| рН                 |             | measured         | Orion              | 7                 |  |
| Zeta Potential     | mV          | measured         | DLS                | -29               |  |
| Concentration      | nps/mL      | calc             |                    | 6.20E+11          |  |
| Wt. conc.          | mg/mL       | calc             |                    | 0.05              |  |
| ppm                |             | calc             |                    | 50                |  |
| Wt. %              | %           | calc             |                    | 0.0050%           |  |
| Molarity           | uM          | calc             |                    | 1.03E-03          |  |
| Molar Ext.         | M-1cm-1     | calc             |                    | 9.67E+08          |  |
| Citrate            | mM          | measured         |                    | 5                 |  |
| Volume             | mL          | measured         |                    | 25                |  |
| Date               |             |                  |                    | 10/4/2019         |  |
| Exp Date           |             |                  |                    | 4/1/2020          |  |
| Alex Schoen, N     | Janager Oua | lity Control     |                    |                   |  |
| Alex Schoen, I     | lanayer Qua | linty Control    |                    | 6 206 4           | - C- |
| Absorbance         |             |                  | •                  | 4. 4. 19.3        | 2 3                                      |
| 1.25               |             | T T              | _                  | San San San San   | 9000°00 460                              |
|                    |             |                  |                    | 2 3 3 4 5         | A. 20. 20.                               |
| 1 -                | Λ           |                  | - X                | A                 | - 10° 5                                  |
| (g) 0.75           | /\          |                  |                    | Sec 2-15 3        | 1000 Care                                |
| 0.75<br>0.5<br>0.5 |             |                  |                    | 7 24 Y            | 100                                      |
| 00                 | N N         |                  |                    | - Const.          | Ser. 6 0.9                               |
| 0.25               | _           |                  |                    | 1                 | 1  |
| 0                  |             |                  |                    | 3. 20. 05 5.00    | Sec. 20.00                               |
| 400                | 600 8       | 00 1000          | 100                |                   |  |