Table 1: Materials and Equipment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Description** | **Suggested vendor** | **Catalog number** | **Storage** |
| **1. Slide preparation and cleaning** | | | | |
| Acetone | 1 L | Sigma | 32201 |  |
| Coverslips | 24x32mm2, 22x40mm2, 24x50mm2  (No.1½, Rectangular) | VWR | 631-0136  631-0144  631-0147 |  |
| Diamond drill bits | 3/4 mm | MTN-Giethoorn, The Netherlands | LA-0564-00DB |  |
| Duran slide holder |  | LGS, The Netherlands | 213170003 |  |
| Glass staining dishes |  | Fisher Scientific | 300101 |  |
| H2O2 | 1 L, hydrogen peroxide 30% | Boom | 6233905 | Opened bottles should be stored at 4 °C. |
| H2SO4 | Sulfuric acid 95-98% | Boom | 80900627.9010 |  |
| KOH | Potassium hydroxide | Sigma | 30603 |  |
| Methanol | 1 L | Sigma | 32213 |  |
| Sonicator | Tabletop ultrasonic cleaner, 3510 | Branson |  |  |
| Quartz slides | 1” x 3”, 1 mm thick | Finkenbeiner |  |  |
| **2. Coverslip cleaning** | | | | |
| Duran slide holder |  | LGS, The Netherlands | 213170003 |  |
| KOH | Potassium hydroxide | Sigma | 30603 |  |
| Sonicator | Tabletop ultrasonic cleaner, 3510 | Branson |  |  |
| **3. Amino-silanization of slides and coverslips** | | | | |
| Acetic acid | Acetic acid, glacial | Sigma | 320099-500ML |  |
| APTES | 3-aminopropyl trimethoxysilane | Sigma-Aldrich | 281778-100ML | Store at the room temperature under N2 . Replace once in a month. |
| Flask (200mL) | Pyrex flask | VWR | Flask (200 mL) | Have one flask dedicated for aminosilanization. |
| Methanol | 1 L | Sigma | 32213 |  |
| Sonicator | Tabletop ultrasonic cleaner, 3510 | Branson |  |  |
| **4. Surface passivation using polymer (the first round)** | | | | |
| Biotin-mPEG | Biotin-PEG-SVA, MW 5,000 Da | Laysan Bio | Biotin-PEG-SVA-5000-100mg | Store aliquots of 1-2 mg (enough for 10 slides) at -20 °C under N2. |
| mPEG | mPEG-succinimidyl valerate (SVA), MW 5,000 Da | Laysan Bio | MPEG-SVA-5000-1g | Store aliquots of 80 mg (enough for 10 slides) at -20 °C under N2. |
| Sodium bicarbonate |  | Sigma | S6014-500G |  |
| **6. Surface passivation (the second round)** | | | | |
| DMSO | Dimethyl sulfoxide BioReagent, for molecular biology, ≥99.9% | Sigma-Aldrich | D8418-100ML |  |
| DST | Disuccinimidyl tartarate | Pierce | 20589 |  |
| MS4-PEG | Short NHS-ester PEG, MW 333 Da | Pierce | 22341 | Dissolve 100 mg MS4-PEG in 1.1 mL DMSO. Store 20 μL aliquots at -20 °C. |
| Sodium bicarbonate |  | Sigma | S6014-500G |  |
| **7. Assembling a microfluidic chamber** | | | | |
| Double sticky tape | 10mm wide | Scotch |  |  |
| Epoxy | Devcon 5 minute epoxy | Thorlabs | G14250 |  |
| NaCl | Sodium chloride | Sigma-Aldrich | S9888-1 KG |  |
| Neutravidin | ImmunoPure NeutrAvidin Biotin-Binding protein | Pierce | 31000 | Stock in 5 mg/mL in H2O at 4 °C. |
| Streptavidin |  | Invitrogen | S-888 | Stock 5 mg/mL in H2O or T50 at 4 °C. |
| Trizma base | Tris | Sigma-Aldrich | T1503-1 KG |  |