

## gLAMP Glossary

- gLAMP Glossary
  - About
  - Controllers
  - Models
  - Views
    - LaTeX
    - HTML

### About

This is a subset of sample entries available as a preview at the manuscript’s v1 submission drop-dead time. The glossary is compiled from a Google Spreadsheet.

Demos are currently available in two formats.

### Controllers

Basics to follow.

### Models

Basics to follow.

### Views

#### LaTeX

- In LaTeX-rendered output, the glossary is available as a 2-column, Oxford English Dictionary style layout. This format is flexible with respect to the number and orientation of the columns. Entries, once compiled, autoindex from their origins in the manuscript body. **The**

approximate base appearance of the layout is as follows:

Aardvark	Azobenzene
A	
<p><b>Aardvark</b> (ahrɖ-vahrk) <i>Noun</i> • A nocturnal badger-sized burrowing mammal of Africa, with long ears, a tubular snout, and a long extensible tongue, feeding on ants and termites. Also called antbear.</p> <p><b>Abbreviated</b> (uh-bree-vee-ey-tid) <i>Adjective</i> • Constituting a shorter or smaller version of</p> <p><b>Aberration</b> (ab-uh-rey-shuh n) <i>Noun</i> • The act of deviating from the ordinary, usual, or normal type.</p> <p><b>Above</b> (uh-buhv) <i>Preposition</i> • In extended space over and not touching.</p> <p><b>Academia</b> (ak-uh-dee-mee-uh) <i>Noun</i> • The environment or community concerned with the pursuit of research, education, and scholarship.</p> <p><b>Accomplished</b> (uh-kom-plisht) <i>Adjective</i> • Completed; done; effected. Highly trained or skilled in a particular activity.</p> <p><b>Acidophilic</b> (uh-sid-uh-fil-ik, as-i-duh-) <i>Adjective</i> • Biology: having an affinity for acid stains; eosinophilic. Ecology: thriving in or requiring an acid environment.</p> <p><b>Adaptation</b> (ad-uh p-tey-shuh n) <i>Noun</i> • The action or process of adapting or being adapted. Biology: The process of change by which an organism or species becomes better suited to its environment</p> <p><b>Adenine</b> (ad-n-in, -een, -ahyn) <i>Noun</i> • A compound which is one of the four constituent bases of nucleic acids. A purine derivative, it is paired with thymine in double-stranded DNA.</p> <p><b>Adorable</b> (uh-dawr-uh-buh l) <i>Adjective</i> • Inspiring great affection or delight.</p> <p><b>Advanced</b> (ad-vanst) <i>Adjective</i> • Far on or ahead in development or progress.</p> <p><b>Aerial</b> (air-ee-uh l) <i>Noun</i> • A rod, wire, or other structure by which signals are transmitted or received as part of a radio or television transmission or receiving system.</p>	<p><b>Affordable</b> (uh-fawr-duh-buh l) <i>Adjective</i> • Believed to be within one’s financial means.</p> <p><b>Agnostic</b> (ag-nos-tik) <i>Noun</i> • A person who holds that the existence of the ultimate cause, as God, and the essential nature of things are unknown and unknowable, or that human knowledge is limited to experience.</p> <p><b>Aioli</b> (ahy-oh-lee) <i>Noun</i> • Mayonnaise seasoned with garlic.</p> <p><b>Alchemy</b> (al-kuh-mee) <i>Noun</i> • The medieval forerunner of chemistry, concerned with the transmutation of matter, in particular with attempts to convert base metals into gold or find a universal elixir.</p> <p><b>Algebra</b> (al-juh-bruh) <i>Noun</i> • The part of mathematics in which letters and other general symbols are used to represent numbers and quantities in formulae and equations.</p> <p><b>Amatol</b> (am-uh-tawl) <i>Noun</i> • A high explosive consisting of a mixture of TNT and ammonium nitrate.</p> <p><b>Almanac</b> (awl-muh-nak) <i>Noun</i> • An annual publication containing a calendar for the coming year, the times of such events and phenomena</p> <p><b>Animal</b> (an-uh-muh l) <i>Noun</i> • A living organism which feeds on organic matter, typically having specialized sense organs and nervous system and able to respond rapidly to stimuli.</p> <p><b>Ascension</b> (auh-sen-shuh n) <i>Noun</i> • The action of rising to an important position or a higher level.</p> <p><b>Aspire</b> (uh-spahyuh r) <i>Verb</i> • Direct one’s hopes or ambitions towards achieving something.</p> <p><b>Athlete</b> (ath-leet) <i>Noun</i> • a person trained or gifted in exercises or contests involving physical agility, stamina, or strength; a participant in a sport, exercise, or game requiring physical skill.</p> <p><b>Azobenzene</b> (az-oh-ben-zeen) <i>Noun</i> • A synthetic crystalline organic compound used chiefly in dye manufacture.</p>

#### HTML

- In HTML-rendered output, the glossary is available as a native `definition list`. Something more sophisticated can be produced at a later time, when this would be a more suitable priority. The purpose of this option is to ensure the availability of a fully portable, plaintext representation without any interceding complexifiers like typographic conventions borrowed from physical book design. **A preview follows below:**

##### Absorbance ("colorimetric")

*Concept.* The absorption of light by a sample, here usually due to the presence of dyes that change color change in the presence/absence of an analytet. Most common colorimetric dyes detect changes in pH/H+ ions, DNA or Mg2+.

Links.

##### Amplicon

*Consumable.* A piece of DNA or RNA that is the product of specific nucleic acid amplification or replication. Amplicons are produced by all Nucleic Acid Amplification Tests (NAAT) and are the result of targeted amplification of a specific sequence of RNA/DNA in the target gene i.e within the SARS-CoV-2 N-gene. While the target gene or pathogen may be present at concentrations tht are too low to detect directly, the amplified DNA/RNA ("amplicon") is present at orders of magnitude higher concentration and thus can be more readily detected in the NAAT.

Links.

**Anterior nares swab (AN)**

*Concept.* A method of collecting a sample from the anterior, 'front' portion of the nose with a swab; approximately the first 1.5 cm within the nostril openings. Swabbing at this site is far less intrusive/unpleasant for the patient compared to nasopharyngeal swabbing.

See Also: NPS

Links.

**At-home tests**

*Consumable.* A test approved to allow one to collect a specimen at home (or similar 'non-medical location' such as a work/office). The sample so-collected can either be sent to a testing facility or if the procedure is amenable and simple to perform, then test can be performed by the individual at home/work. LAMP methods are sufficiently simple that they lend themselves to this type of testing.

See Also: Distributed testing

Links.

**Backward primers**

*Consumable.* A set of typically three short (~20-45 base) DNA oligonucleotides required for LAMP reactions that hybridize to complementary DNA (cDNA) in order to target binding of the strand displacing polymerase e.g Bst polymerase at specific DNA sequences of diagnostic interest I.e in the SARS CoV2 N-gene. The three Backward ("B-primers") are abbreviated as B, analogous to Reverse primers commonly used in PCR.

Links.

**Base-pairing interaction**

*Concept.* The binding of one nucleotide base in DNA or RNA to the corresponding Crick and Watson base e.g G binding to C, A binding to T via hydrogen bonds, usually in the context of short (oligonucleotide) or long DNA or RNA strands. The elevated ~ 65oC temperature used for LAMP temporarily and locally breaks these hydrogen bonds between the two strands.

Links.

**Basic Local Alignment Search Tool (BLAST)**

*Equipment.* A bioinformatics program that compares nucleotide or protein sequences to sequence databases and calculates the statistical significance to find regions of similarity between biological sequences. Often used to check for sequence variation between the target and other genes, both within ad between species.

Links.

**BEI Resources (BEI)**

*Entity.* The Biodefense and Emerging Infections Research Resources Repository (BEI Resources) was established by the National Institute of Allergy and Infectious Diseases (NIAID) to provide reagents, tools and information for studying Category A, B, and C priority pathogens, emerging infectious disease agents, non-pathogenic microbes and other microbiological materials of relevance to the research community.

Links.

**Beta-Actin (human gene) (ACTB)**

*Consumable.* The major cytoskeletal protein of most cells. Since it is constitutively expressed, the human beta-actin gene (ACTB) is often used as an extraction control in molecular diagnostic tests to confirm that the procedures used to extract nucleic acids from the sample (and by implication from the target/pathogen) are functioning properly.

Links.

**bioRxiv**

*Entity.* An open access preprint repository for biological sciences hosted by the Cold Spring Harbor Laboratory. Given the rapid pace of change in SARS-CoV-2 rsearch, many laboratories now publish preprints of their work in bioRxiv in parallel with submission to a peer-reviewed journal.

See Also: medRxiv

Links.

**Bst DNA polymerase**

*Consumable.* A DNA-dependent DNA polymerase originating in *Geobacillus Stearothermophilus*, used in molecular assays for its high processivity and strand displacement activity.

Links.

**Capsid**

*Concept.* The protein shell of a virus that encloses its genetic material.

Links.

**Cheek swab**

*Concept.* A method of collecting a sample from the inside of the mouth with a swab.

Links.

**Clustered regularly interspaced short palindromic repeats (CRISPR)**

*Concept.* A gene-editing technology which involves two essential components: a guide RNA to match a desired target gene, and an endonuclease, such as Cas9, which causes a double-stranded DNA break, allowing modifications to the genome.

doi.org/10.1136/archdischild-2016-310459 (https://doi.org/10.1136/archdischild-2016-310459)

**Colorimetric LAMP**

*Concept.* A spectrophotometric amplification detection method that may enable naked-eye evalutation in some configurations.

Links.

**Deoxyuridine Triphosphate (dUTP)**

*Consumable.* A uracil-containing nucleoside used to replace dTTP in an amplification reaction. This is commonly used in conjunction with a uracil DNA glycosylase (UDG) to prevent non-specific amplification caused by carryover contamination.

www.sigmaaldrich.com/life-science/molecular-biology/molecular-biology-products.html?TablePage=14562166 (https://www.sigmaaldrich.com/life-science/molecular-biology/molecular-biology-products.html?TablePage=14562166)

**Desalting**

*Concept.* A process by which buffer salts and other small molecules are removed from a sample in exchange for water.

Links.

**Detection of Amplification by Releasing of Quenching (DARQ)**

*Concept.* A method of sequence-specific detection using primer, usually the inner or loop primer, with a 5' quencher annealed to a probe with a 3' fluorescent dye. The strand-displacing ability of Bst DNA separates the quencher-primer from the fluorescent-probe as the primer is incorporated in the amplification reaction, thus signaling the presence of the target sequence. If the target sequence is not present, the quencher-primer remains annealed to the fluorescent-probe, emitting no fluorescence.

www.researchgate.net/publication/231816341\_Simultaneous\_multiple\_target\_detection\_in\_real-time\_loop-mediated\_isothermal\_amplification/figures (https://www.researchgate.net/publication/231816341\_Simultaneous\_multiple\_target\_detection\_in\_real-time\_loop-mediated\_isothermal\_amplification/figures)

**Distributed lab testing**

*Concept.* A health system model wherein lab testing can be done at any site where care is provided, rather than the centralized model where most of the lab tests go to high-level core laboratories

www.darkintelligencegroup.com/the-dark-report/laboratory-equipment/distributed-lab-model-soon-to-become-reality/ (https://www.darkintelligencegroup.com/the-dark-report/laboratory-equipment/distributed-lab-model-soon-to-become-reality/)

**Dithiothreitol (DTT)**

*Concept.* A reducing agent which disrupts protein disulfide bonds and stabilizes enzymes containing free sulphyhydryl groups.

www.thermofisher.com/order/catalog/product/R0861#/R0861 (https://www.thermofisher.com/order/catalog/product/R0861#/R0861)

**Dried lytic reagent**

*Consumable.* Lysis reagents, normally in liquid form, are dried on materials such as paper or tubes and are ready for use once rehydration. The drying process aids in the preservation of

the reagents.

[doi.org/10.1371/journal.pntd.0003578](https://doi.org/10.1371/journal.pntd.0003578) (<https://doi.org/10.1371/journal.pntd.0003578>)

[www.ncbi.nlm.nih.gov/pmc/articles/PMC4358998/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4358998/)  
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4358998/>)

**Dry swab**

*Concept.* A swabbing technique that does not use viral tranport medium (VTM) for storage and transportation. The dry swabs are directly transported, then eluted prior to an amplification assay.

[doi.org/10.1101/2020.04.22.056283](https://doi.org/10.1101/2020.04.22.056283) (<https://doi.org/10.1101/2020.04.22.056283>)

**Flocked tapered swab**

*Concept.* A swab that contains tens of thousands of short nylon strands flocked onto the tip which allows a higher sample yield compared to fiber swabs and cell foam swabs.

[www.copanusa.com/covid-19-sample-collection-kits-for-upper-respiratory-tract-specimens/](https://www.copanusa.com/covid-19-sample-collection-kits-for-upper-respiratory-tract-specimens/)  
(<https://www.copanusa.com/covid-19-sample-collection-kits-for-upper-respiratory-tract-specimens/>)

**GC composition**

*Concept.* The percent composition of nitrogenouse bases in a nucleic acid molecule that are either guanine or cytosine.

Links.

**High performance liquid chromatography (HPLC)**

*Concept.* A type of pump-based liquid chromatography used to separate, identify, and quantify each component in a mixture.

[doi.org/10.1016/B978-0-12-813629-4.00005-X](https://doi.org/10.1016/B978-0-12-813629-4.00005-X) (<https://doi.org/10.1016/B978-0-12-813629-4.00005-X>)

**Intercalating dye**

*Consumable.* A sequence-independent method of DNA detection that works by the insertion of the fluorescent molecules in between the DNA base pairs. The intensity of the fluorescent signal increases as more DNA copies are synthesized and the dye molecules are inserted.

[doi.org/10.1007/b135804](https://doi.org/10.1007/b135804) (<https://doi.org/10.1007/b135804>)

**Limit of detection (LoD)**

*Concept.* The lowest quantity of a substance that can be distinguished from the absence of that substance with a stated confidence level.

Links.

**Loop-mediated isothermal amplification (LAMP)**

*Concept.* A one-step amplification reaction that amplifies a target DNA sequence with high sensitivity and specificity under isothermal conditions.

[doi.org/10.1007/s10156-009-0669-9](https://doi.org/10.1007/s10156-009-0669-9) (<https://doi.org/10.1007/s10156-009-0669-9>)

**medRxiv**

*Entity.* An open access preprint repository for health sciences hosted by the Cold Spring Harbor Laboratory.

Links.

**Molecular diagnostics**

*Concept.* Molecular diagnostics is a collection of techniques used to analyse biological markers in the genome and proteome—the individual's genetic code and how their cells express their genes as proteins—by applying molecular biology to medical testing. The technique is used to diagnose and monitor disease, detect risk, and decide which therapies will work best for individual patients.

Links.

**Nasal mid-turbinate swab**

*Concept.* A method of collecting the sample in the mid-turbinate area of the nose which is an area above a person's hard palate.

Links.

**Nasopharyngeal swab (NPS)**

*Concept.* A method of collecting a sample from the back of the nose and throat. The swab should reach a depth equal to the distance from the nostrils to the outer opening of the ear.

Links.

**Nasopharyngeal wash**

*Concept.* A method of obtaining ciliated repiratory epithelial cells from posterior nasopharynx for viral detection. This is done through running saline solution in one nostril and collecting the fluid accordingly.

[www.uchealth.org/professionals/uch-clinical-laboratory/specimen-collecting-handling-guide/nasal-wash-swab-collection/](https://www.uchealth.org/professionals/uch-clinical-laboratory/specimen-collecting-handling-guide/nasal-wash-swab-collection/) (<https://www.uchealth.org/professionals/uch-clinical-laboratory/specimen-collecting-handling-guide/nasal-wash-swab-collection/>)

**Nucleic acid amplification test (NAAT)**

*Concept.* Since the amount of a certain genetic material is usually very small, many NATs include a step that amplifies the genetic material—that is, makes many copies of it. Such NATs are called nucleic acid amplification tests (NAATs). ). There are several ways of amplification, including polymerase chain reaction (PCR), strand displacement assay (SDA), or transcription mediated assay (TMA).

Links.

**Oropharyngeal (OP)**

*Concept.* A method of collecting a sample from the back of the throat. The swab should reach the posterior wall of the oropharynx (throat).

[www.ncbi.nlm.nih.gov/pmc/articles/PMC7494432/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7494432/)  
(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7494432/>)

**Plate reader**

*Equipment.* An instrument used to quantify several biological and chemical assays within a microplate.

[www.bmglabtech.com/microplate-reader/](https://www.bmglabtech.com/microplate-reader/) (<https://www.bmglabtech.com/microplate-reader/>)

**Point-of-care clinical testing (POC)**

*Concept.* A form of testing performed near or at the site of the patient while accurately achieving lab-quality diagnostic results within a relative short amount of time.

[www1.health.gov.au/internet/publications/publishing.nsf/Content/qupp-review~qupp-definitions](https://www1.health.gov.au/internet/publications/publishing.nsf/Content/qupp-review~qupp-definitions) (<https://www1.health.gov.au/internet/publications/publishing.nsf/Content/qupp-review~qupp-definitions>)

**Polyethylene glycol (precipitation) (PEG)**

*Consumable.* A non-specific technique that separates proteins based on their solubility properties through precipitation from an aqueous solution.

[doi.org/10.1258/acb.2008.007262](https://doi.org/10.1258/acb.2008.007262) (<https://doi.org/10.1258/acb.2008.007262>)

**Polymerase chain reaction (PCR)**

*Concept.* A DNA amplification technique that uses short DNA sequences called primers to select the portion of the genome to be amplified. The temperature of the sample is repeatedly raised and lowered to enable a DNA replication enzyme to copy the target DNA sequence.

[www.genome.gov/genetics-glossary/](https://www.genome.gov/genetics-glossary/) (<https://www.genome.gov/genetics-glossary/>)

**Positive-strand RNA virus**

*Consumable.* A type of virus that contains single-stranded RNAs that can be directly translated into viral proteins by the host cell.

[doi.org/10.1128/JVI.77.15.8181-8186.2003](https://doi.org/10.1128/JVI.77.15.8181-8186.2003) (<https://doi.org/10.1128/JVI.77.15.8181-8186.2003>)

[pubmed.ncbi.nlm.nih.gov/12857886/](https://pubmed.ncbi.nlm.nih.gov/12857886/) (<https://pubmed.ncbi.nlm.nih.gov/12857886/>)

**Preservative (transport medium)**

*Consumable.* A solution containing necessary components to preserve microorganism viability without allowing multiplication during storage and transport.

[www.sciencedirect.com/topics/nursing-and-health-professions/transport-medium](https://www.sciencedirect.com/topics/nursing-and-health-professions/transport-medium)  
(<https://www.sciencedirect.com/topics/nursing-and-health-professions/transport-medium>)

**Primer**

*Consumable.* Short, single-stranded DNA sequences used in pairs to hybridize with the sample DNA and define the region of the DNA that will be amplified. Primers are also referred to as oligonucleotides.

[www.genome.gov/genetics-glossary/](https://www.genome.gov/genetics-glossary/) (<https://www.genome.gov/genetics-glossary/>)

**Proteinase K (ProK)**

*Consumable.* A nonspecific serine protease that hydrolyzes a variety of peptide bonds and is used to cleanup enzymatic reactions or cell lysates.

Links.

**PyroPhage 3173 DNA polymerase**

*Consumable.* A thermostable bacteriophage enzyme manufactured by Lucigen Corporation that allows for isothermal DNA synthesis through double-stranded DNA that can be initiated either with primers or at a nick introduced by site-specific nicking enzymes. It can perform single-tube, single-enzyme reverse-transcription PCR of RNA templates.

Links.

**Quantitative polymerase chain reaction (qPCR)**

*Concept.* A PCR technique that allows for real-time, quantitave monitoring of the amplification reaction.

Links.

**Quantitative reverse transcription polymerase chain reaction (RT-qPCR)**

*Concept.* A PCR technique that allows for real-time, quantitave monitoring of the amplification reaction.

Links.

**Quenching of Unincorporated Amplification Signal Reporters (QUASR)**

*Concept.* A method of sequence-specific detection using primers, usually the inner or loop primer, with a 5' fluorescent dye and a complementary probe with a 3' dark quencher. The quencher probes have a lower melting temperature than the reaction temperature, so that the primers are free to bind to the target sequence. Primers that are incorporated in the amplicons retain their fluorescence at the end of the reaction, signaling the presence of the target sequence. Conversely, unincoporated primers are quenched by the binding of the complementary probes, thus having no fluorescent signal.

doi.org/10.1021/acs.analchem.5b04054 (https://doi.org/10.1021/acs.analchem.5b04054)

**Rabe Cepko**

*Concept.* A SARS-CoV-2 detection protocol developed by Brian A. Rabe and Constance Cepko that features rapid and inexpensive sample inactivation and purification.

Links.

**Reverse Transcriptase (RT)**

*Consumable.* An enzyme that makes a 'copy' of DNA using a RNA sequence as the template (i.e RNA to cDNA). This contrasts with many DNA-dependent RNA polymerases that catalyse the reaction in the opposite (DNA-to-RNA) direction. Reverse transcriptases can be isolated from a variety of organisms, often retroviruses (AMV, HIV, MMLV) and in LAMP tests are used to convert the viral RNA into DNA which acts as the template for the strand displacing DNA polymerase that is used to drive amplification. In RT-LAMP, one of the three forward primers ("FIP") targets the RNA that Reverse TRanscriptase will convert to the correspdng cDNA.

Links.

**Reverse transcriptase (RTX)**

*Consumable.* An enzyme employed to generate complementary DNA (cDNA) from an RNA template.

Links.

**Reverse transcription loop-mediated isothermal amplification (RT-LAMP)**

*Concept.* A nucleic acid amplification method offering rapid, accurate, and cost-effective diagnosis of infectious diseases caused by RNA viruses.

doi.org/10.1007/s10156-009-0669-9 (https://doi.org/10.1007/s10156-009-0669-9)

**Ribonuclease P (RNase P)**

*Consumable.* An endonuclease which cleaves RNA molecules between a single-stranded region and the 5' end of a double-stranded region. It commonly serves as a positive extraction control for amplification assays.

doi.org/10.1098/rstb.2011.0142 (https://doi.org/10.1098/rstb.2011.0142)

www.ncbi.nlm.nih.gov/pmc/articles/PMC3158923/

(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3158923/)

**RNase inhibitor**

*Concept.* An enzyme utilized to inhibit RNase acitivity, thus preventing RNA degradation in assays such as RT-qPCR and RT-LAMP.

www.thermofisher.com/ph/en/home/life-science/dna-rna-purification-analysis/rna-extraction/rna-extraction-products/rnase-inhibitors.html  
(https://www.thermofisher.com/ph/en/home/life-science/dna-rna-purification-analysis/rna-extraction/rna-extraction-products/rnase-inhibitors.html)

**Saliva Direct®**

*Trademark.* An EUA-approved saliva-based RT-qPCR testing method developed by the Yale School of Public Health. The sensitive, simplified, and flexible framework can help increase testing capacity with resilience to supply chain shortages.

doi.org/10.1016/j.medj.2020.12.010 (https://doi.org/10.1016/j.medj.2020.12.010)

**SD DNA polymerase**

*Consumable.* A Taq DNA polymerase with strong strand displacement capability, high thermostability (93°C–94°C), 5'-3'-polymerase activity, 5'-3'- strand displacement activity, and a lack of exonuclease activity. The enzyme is suitable for PCR and LAMP.

Links.

**Spin down**

*Concept.* The separation of particles from a solution in a centrifuge.

Links.

**Sponge**

*Consumable.* A cellulose sampling medium for collecting fluids such as saliva.

Links.

**Spun polyester swab**

*Consumable.* A sample collection swab made of polyester making it ideal for diagnostic sampling as it will be free of fatty acids, sugars, or toxins.

Links.

**Supernatant**

*Consumable.* The clear liquid at the top of the tube after a centrifuge has been used to spin down a sample.

Links.

**T7 promoter**

*Consumable.* A sequence of DNA (5' – TAATACGACTCACTATAG – 3') that is recognized by T7 RNA polymerase1 and often used to regulate gene expression of recombinant proteins.

Links.

**Taq polymerase**

*Consumable.* A thermostable DNA polymerase widely used in PCR, due to its ability to withstand exposures to temperatures up to 94-95 C

doi.org/10.1007/978-1-349-20235-5\_2 (https://doi.org/10.1007/978-1-349-20235-5\_2)

**Target amplification**

*Concept.* Any method that identifies a certain molecular species through increasing the number of target molecules by amplification

pubmed.ncbi.nlm.nih.gov/2288446/ (https://pubmed.ncbi.nlm.nih.gov/2288446/)

**Template**

*Consumable.* A sequence of DNA/RNA used by the polymerase as a guide for synthesizing new strands, wherein the polymerase attaches complementary DNA bases to the template as it extends the newly-sequence strand.

doi.org/10.1038/jid.2013.1 (https://doi.org/10.1038/jid.2013.1)

**Tris(2-carboxyethyl)phosphine (TCEP)**

*Consumable.* A shelf-stable reducing agent that disrupts disulfide bridges, thus denaturing proteins.

doi.org/10.1073/pnas.2011221117 (https://doi.org/10.1073/pnas.2011221117)

**Tris/Borate/EDTA (TBE)**

*Consumable.* A buffer used in nucleic acid electrophoresis to maintain constant pH and also conduct electricity to separate nucleic acids by molecular weight. Tris-EDTA buffers, with or without borate, can also be used extract RNA from the virus.

[www.sigmaaldrich.com/technical-documents/articles/biology/tae-and-tbe-running-buffers-recipe.html](http://www.sigmaaldrich.com/technical-documents/articles/biology/tae-and-tbe-running-buffers-recipe.html) (<https://www.sigmaaldrich.com/technical-documents/articles/biology/tae-and-tbe-running-buffers-recipe.html>)

***TritonX 100***

*Consumable.* t-Octylphenoxypolyethoxyethanol is a non-ionic detergent, often used to inactivate viruses, tthat is distributed by SigmaAldritch.

Links.

***Turbidity***

*Concept.* The measure of relative clarity of a liquid given by measuring the amount of light that is scattered by material in a liquid. The higher the intensity of scattered light, the higher the turbidity.

[www.usgs.gov/special-topic/water-science-school/science/turbidity-and-water?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](http://www.usgs.gov/special-topic/water-science-school/science/turbidity-and-water?qt-science_center_objects=0#qt-science_center_objects) ([https://www.usgs.gov/special-topic/water-science-school/science/turbidity-and-water?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/special-topic/water-science-school/science/turbidity-and-water?qt-science_center_objects=0#qt-science_center_objects))

***Tween 20***

*Consumable.* Branded polyoxyethylenesorbitan monolaurate (Polysorbate 20). Polysorbate 20 a viscous nonionic polysorbate surfactant and emulsifier with a fatty acid ester moiety (lauric acid) and a long polyoxyethylene chain.

Links.

***Tween 80***

*Consumable.* Branded polyoxyethylenesorbitan monooleate (Polysorbate 80). Polysorbate 80 a viscous nonionic polysorbate surfactant and emulsifier with a fatty acid ester moiety (oleic acid) and a long polyoxyethylene chain.

Links.

***Ultrafiltration (CF)***

*Concept.* Centrifugal ultrafiltration is a DNA/RNA purification technique that employs a filtration membrane.

Links.

***Uracil DNA Glycosylase (UDG)***

*Consumable.* A highly conserved repair enzyme that prevents mutagenesis by catalyzing the release of free uracil from uracil-containing DNA bycleaving the N-glycosidic bond and initiating the base-excision repair (BER) pathway.

[en.wikipedia.org/wiki/Uracil-DNA\\_glycosylase](http://en.wikipedia.org/wiki/Uracil-DNA_glycosylase) ([https://en.wikipedia.org/wiki/Uracil-DNA\\_glycosylase](https://en.wikipedia.org/wiki/Uracil-DNA_glycosylase))