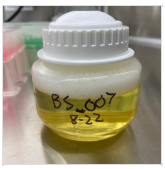

Sep 09, 2020

FloodLAMP Binding Solution Prep v1.1

Randy True[1]

[1]FloodLAMP Biotechnologies PBC

1 Works for me dx.doi.org/10.17504/protocols.io.bk5sky6e

FloodLAMP.bio XPRIZE Rapid Covid Testing

Randy True

ABSTRACT

The Binding Solution includes NaI, HCl, Triton-X100, and water. We have had lots of trouble with it, largely due to a mistake that has been corrected. In our hands currently, the Binding Solution is a pale yellow—a possibility mentioned in the Rabe Cepko paper. It does seem to become cloudy over time (days to weeks). Our current plan is to prepare weighed-out NaI and the other components premixed (stored at 4C) for easier prep, and then make fresh Binding Solution up at least weekly.

We have moved to storing the Binding Solution in 5mL amber screw cap tubes for development runs (2.25mL for a single strip of 8 samples), with these in an opaque container. This makes it convenient to add glass milk and use it as a master mix (as suggested by Rabe Cepko). Care must be taken to keep the silica resuspended prior to pipetting for the addition to the sample, hence the mixing by pipetting on every draw.

DOI

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PROTOCOL CITATION

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GUIDELINES

Individuals are responsible for the chemical safety training to safely complete this protocol. This procedure should be completed in a chem fume hood with appropriate PPE.

MATERIALS

NAME	CATALOG #	VENDOR
Hydrochloric acid	H1758	Sigma Aldrich
UltraPure Distilled Water	10977015	Thermo Fisher Scientific
Triton X-100	X100-100ML	Sigma Aldrich

NAME	CATALOG #	VENDOR
Sodium Iodide (NaI)	793558	Sigma

MATERIALS TEXT

- 50mL Falcon tubes
- 5mL amber Eppendorf DNA tube with screw cap ($85 for 200)

150mL Nalgene vacuum Filter with .22um PES filter (12 for $92)

SAFETY WARNINGS

Hydrochloric acid is very caustic and should be handled with caution. Be extra careful cleaning spills as to not create toxic chlorine gas. Sodium Iodide is hazardous if ingested.

1 Weight out 45g of NaI into 50mL Falcon Tube

2 Add 1st traunch of water to 45ml

3 Vortex, shake and then vortex again until fully mixed

4 Add 2nd traunch of water to 46mL

5 Vortex, shake and then vortex again until fully mixed

6 Vacuum filter (or wait and vacuum filter many tubes at the end)

7 Add .5mL of 1N HCl

8 Vortex for 10s, be careful that the tube is completely closed

9 Add 1.0 mL of Triton X-100, note that it is very viscous (use 1000ul tip with end cut off)

10 Vortex for 10s and shake

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11 Add 2.5mL UltraPure dH2O

12 Vortex 10s

13 Aliquot to 5mL amber Eppendorf screw caps, 2.25mL for 8 x .5mL samples, store in dark box

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