

Irgacure 2959 Solid Use Protocol and Tips

Overview:

Irgacure 2959 is a highly efficient photoinitiator that can be used to solidify OkaGel through crosslinking polymerization. It helps to control OkaGel in 3D bioprinting, cell culture, drug delivery, tissue engineering and biological device design.

Irgacure 2959 is UV light sensitive and is most reactive with UV light wavelengths of 360-370nm. Ensure to always use an aluminum foil-wrapped vessel as Irgacure 2959 is light sensitive!

Protocol:

1. Determine the parameters required by the final OkaGel solution:
 - a. Final volume
 - b. %w/v OkaGel
 - c. % concentration Irgacure 2959
 - For example, 10mL of 5% w/v OkaGel with 0.5% Irgacure concentration is required.
2. Based on the requirements above, determine the amount of OkaGel and Irgacure 2959 required.
 - a. for 10mL final volume, use 0.5g of OkaGel Solid and 0.05g of Irgacure 2959.
3. prepare precursor Irgacure 2959 solution.
 - a. Add Irgacure 2959 solid to a volume of PBS that corresponds to 20% of the final volume of OkaGel.
 - i. For 10mL of final solution, dissolve 0.05g in 2mL PBS.
 - b. Place Irgacure 2959/PBS in a 40-60°C water bath for 20 mins.
 - c. Vortex the solution to agitate any undissolved particles.
 - d. Place back into the water bath for ~10 more mins.
 - e. The resulting solution is not sterile. To sterilize, the solution can be autoclaved.
4. Prepare precursor OkaGel solution.
 - a. Add OkaGel Solid to a volume of PBS that corresponds to 80% of the final volume of OkaGel.
 - i. For 10mL of final solution, dissolve 0.5g in 8mL PBS, for more information, refer to [OkaGel Solid Protocol](#).
5. Transfer the Irgacure 2959 solution to the OkaGel solution.
6. Mix well for ~15 minutes at 40°C.
7. Store the final OkaGel/Irgacure 2959 solution at 4°C