

## **Standard Operating Procedure (SOP): How to Safely Handle Peptide Coupling Agents to Reduce Risk of Exposure**

**Hazards:** Peptide coupling agents are potent immune sensitizers. They have caused cases of both skin and respiratory sensitization in the form of rashes and lesions (i.e. dermatitis) and coughing, sneezing, and throat-closing (i.e. anaphylaxis) reactions. Peptide coupling agents can potentially covalently bind to human proteins, which is the most-likely mechanism through which they cause immune sensitization. Researchers should take care to avoid exposure to them as much as possible.

**Engineering Precautions:** Every research laboratory using peptide coupling agents should have a fume hood with a balance dedicated to weighing out peptide coupling agents and other sensitizing agents. The fume hood and balance should be free of debris and clutter, and any spilled reagents should be promptly cleaned and removed. The fume hood should also be equipped with a waste container dedicated to contaminated weigh paper.

### **Procedure**

1. Obtain a closed bottle of peptide coupling agent and a sealable secondary container (such as a glass flask with a screw-on lid) and transport both to a fume hood equipped with a balance.
2. Open the bottle of peptide coupling agent completely inside the fume hood. Do not open the bottle outside the fume hood or you will risk exposures to the peptide coupling agent.
3. Weigh out the desired amount of peptide coupling agent and transfer it to the sealable secondary container.
4. While still working in the fume hood, seal the sealable secondary container with the coupling agent inside the container.
5. Dispose of the contaminated weigh paper in the waste container found in the fume hood. Do not dispose the weigh paper in a trash can outside of the fume hood, as this will cause lab exposure to peptide coupling agents. (Note: If you spill peptide coupling agents on the balance, fume hood floor, your gloves, etc., make sure to clean up your spill and place your contaminated gloves in the waste container in the fume hood before removing your hands from the fume hood.)
6. Transport your sealed secondary container with coupling agent to your own fume hood or to the automated synthesizer.
7. Continue performing your reactions as normal, always inside a fume hood if possible. If using an automated synthesizer, open all reagent containers as little as possible outside a fume hood.