Immunotherapy Vial Preparation — Practical Considerations

After undergoing allergy testing, either in vivo or in vitro, a patient may elect to pursue subcutaneous (SCIT) or sublingual (SLIT) allergy immunotherapy. Once prescribed, the immunotherapy vials may be formulated in physician's office, under sterile conditions according to the current USP General Chapter <797> Pharmaceutical Compounding – Sterile Preparations standards. Learn more at: **http://www.aaoallergy.org/practice-2/practice-resource-tool-kit/ or at http://www.ups.org/compounding/general-chapter-797**.

Allergy immunotherapy vials must include additives for bacteriostasis and preservation of potency. There are three available diluents and additives presently used in the preparation of immunotherapy vials used for either subcutaneous or sublingual routes. It is recommended that agents that are bacteriostatic and act as antigen stabilizers be utilized.

- Glycerin can act as both a bacteriostatic agent and an antigen stabilizer in higher concentrations.
- Phenolated saline, which is used as the main diluent in formulating immunotherapy vials, is bacteriostatic. However, when used without an additive a marked decrease in antigen potency was noted.[1, 2, 3]
- Human serum albumin (HSA) acts as a stabilizer and also decreases adherence of the antigen to glass vials.[1, 2, 4, 5, 6]

When preparing immunotherapy vials for sublingual therapy one should consider using 50% glycerin as the diluent, to incorporate the bacteriostatic and stabilizing properties and improve palatability.

In addition, it is recommended that allergy practitioners maintain consistency with antigen lots and antigen suppliers as much as possible to reduce variation of potency and dose.[2]

However, the AAOA recognizes the need to switch antigen suppliers under certain circumstances. Caution should be used when changing lots of individual antigens, and especially when changing antigen suppliers, as potency can vary significantly, even in well-characterized or standardized extracts.

If a change in antigen supplier is necessary, options include:

1 Re-testing affected patient(s) with the antigens from the new antigen supplier to establish new endpoints for immunotherapy thereby establishing a new safe initial dose.

2 Implementing the recommendations of the antigen supplier for conversion.

In all circumstances, a new vial test is highly recommended whenever a new lot of antigen or a new antigen supplier is used.

Also, several clinical scenarios have been identified in which a single treatment vial for immunotherapy may not be adequate. It is recommended to consider separating antigens with known high proteolytic activity from antigens that are sensitive to proteases or antigens with low proteolytic activity to preserve their potency over the course of immunotherapy treatment.[3, 7]

In addition, at least temporary separation of antigens into more than one vial may be considered when there are antigens to which a patient is highly sensitized, in order to minimize the risk of reaction, as well as, avoid hindering advancement of less sensitive antigens during escalation.[3, 7, 8] Also, separation may be necessary if the number of antigens included in the patient's vaccine exceeds what is allowable based on the total volume of the treatment vial.[3, 7]

For further information on supervision, "incidence to," and beyond-use date (BUD), please refer to the Clinical Care Statement on *Allergen Extract Compounding of In Office Immunotherapy Vials* and the AAOA's Practice Resources Toolkit — **www.aaoallergy.org/practice-2/practice-resource-tool-kit/**

1 Nelson HS. Effect of preservatives and conditions of storage on the potency of allergy extracts. *J Allergy Clin Immunol*. 67(1): 64–69, Jan 1981.

2 Bosquet J, Lockey R, Malling H-J. Allergen immunotherapy: Therapeutic vaccines for allergic diseases - A WHO position paper. *J Allergy Clinical Immunology*. 102(4):558-62. Oct 1998.

3 King HC, et al. Allergy in ENT Practice, second edition. *Theme Medical Publishers, Inc*. New York, NY, 2005: 226-229, 273-79

4 Cox L, et al. Allergen Immunotherapy: A practice parameter third update. *J Allergy Clin Immunol*. 27(1):S1-S55. 2010.

5 Nelson HS, et al. Studies of allergen extract stability: The effects of dilution and mixing. *J Allergy Clin Immunol*. 98(2): 382-388, Aug 1996.

6 Gilbert KC, et al. Antibacterial properties of additives used in injection immunotherapy. *International Forum Allergy Rhinology*, 2(2): 135-8, Mar-Apr 2012.

7 Haydon RC III, Gordon BR. Aeroallergen immunotherapy. In: Krause HF, et al., ed. Allergy and immunology: an otolaryngic approach. Philadelphia, PA: *Lippincott Williams & Wilkins*, 2002;170-1.

8 Ward WA Jr. Skin endpoint immunotherapy. In: Krause HF, ed. *Otolaryngic allergy and immunology*. Philadelphia, PA; WB Saunders, 1989; 155-62

Note: American Academy of Otolaryngic Allergy's (AAOA) Clinical Care Statements attempt to assist otolaryngic allergists by sharing summaries of recommended therapies and practices from current medical literature. They do not attempt to define a quality of care for legal malpractice proceedings. They should not be taken as recommending for or against a particular company's products. The Statements are not meant for patients to use in treating themselves or making decisions about their care. Advances constantly occur in medicine, and some advances will doubtless occur faster than these Statements can be updated. Otolaryngic allergists will want to keep abreast of the most recent medical literature in deciding the best course for treating their patients.