3. Joint Task Force on Practice Parameters: American Academy of Allergy, Asthma and Immunology; American College of Allergy, Asthma and Immunology; Joint Council of Allergy, Asthma and Immunology. Allergen immunotherapy: a practice parameter second update. *J Allergy Clin Immunol* 2007; **120** (3 suppl): S25–S85. Also available at: http://www.jcaai.org/file_depot/0-10000000/20000-30000/27387/folder/63948/IT_supplement.pdf (accessed 28/4/08)
4. Royal College of Physicians. *Allergy: the unmet need: a blueprint for better patient care.* Report of a working party. London: RCP, 2003. Also available at: http://www.rcplondon.ac.uk/pubs/contents/81e384d6-0328-4653-9cc2-2aa7baa3c56a.pdf (accessed 28/4/08)
5. Calderon MA, *et al.* Allergen injection immunotherapy for seasonal allergic rhinitis. Available in The Cochrane Database of Systematic Reviews; Issue 1. Chichester: John Wiley; 2007 (accessed 8/11/07).
6. Wilson DR, *et al.* Sublingual immunotherapy for allergic rhinitis. Available in The Cochrane Database of Systematic Reviews; Issue 2. Chichester: John Wiley; 2003 (accessed 8/11/07).
7. Moss MH. Immunotherapy: first do no harm. *Immunol Allergy Clin North Am* 2005; **25:** 421–39.
8. Frew AJ, British Society for Allergy and Clinical Immunology Working Party. Injection Immunotherapy. *BMJ* 1993; **307:** 919–23.
9. Thoracic Society of Australia and New Zealand and Australasian Society of Clinical Immunology and Allergy. A position paper: specific allergen immunotherapy for asthma. *Med J Aust* 1997; **167:** 540–44. Also available at: http://www.mja.com.au/public/issues/nov17/weiner/weiner.html (accessed 03/04/06)
10. Committee on Safety of Medicines/Medicines Control Agency. Desensitising vaccines: new advice. *Current Problems* 1994; **20:** 5. Also available at: http://www.mhra.gov.uk/home/idcplg?IdcService=GET_FILE&dDocName=CON2015616&RevisionSelectionMethod=LatestReleased (accessed 13/12/07)
11. Anonymous. Immunotherapy. *CMAJ* 2005; **173** (suppl): S46–S50.
12. Penagos M, *et al.* Efficacy of sublingual immunotherapy in the treatment of allergic rhinitis in pediatric patients 3 to 18 years of age: a meta-analysis of randomized, placebo-controlled, double-blind trials. *Ann Allergy Asthma Immunol* 2006; **97:** 141–8.
13. van Cauwenberge P, *et al.* European Academy of Allergology and Clinical Immunology. Consensus statement on the treatment of allergic rhinitis. *Allergy* 2000; **55:** 116–34. Also available at: http://www.eaaci.net/site/Treatment.pdf (accessed 31/03/06)
14. Abramson MJ, *et al.* Allergen immunotherapy for asthma. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 2003 (accessed 19/01/06).
15. Platts-Mills T, *et al.* The role of allergens in asthma. *Am Fam Physician* 2007; **76:** 675–80.
16. Bonifazi F, *et al.* European Academy of Allergology and Clinical Immunology Interest Group on Insect Venom Hypersensitivity. Prevention and treatment of hymenoptera venom allergy: guidelines for clinical practice. *Allergy* 2005; **60:** 1459–70. Also available at: http://www.eaaci.net/media/PDF/P/653.pdf (accessed 31/03/06)
17. Moffitt JE, *et al.* Joint Task Force on Practice Parameters: American Academy of Allergy, Asthma and Immunology; American College of Allergy, Asthma and Immunology; Joint Council of Allergy, Asthma and Immunology. Stinging insect hypersensitivity: a practice parameter update. *J Allergy Clin Immunol* 2004; **114:** 869–86. Also available at: http://www.jcaai.readyportal.net/file_depot/0-10000000/20000-30000/27387/folder/63948/Insect_hypersensitivity_2004.pdf (accessed 30/04/08)
18. Fernández-Caldas E, *et al.* Mite immunotherapy. *Curr Allergy Asthma Rep* 2006; **6:** 413–19.
19. Werfel T, *et al.* Usefulness of specific immunotherapy in patients with atopic dermatitis and allergic sensitization to house dust mites: a multi-centre, randomized, dose-response study. *Allergy* 2006; **61:** 202–5.
20. Joint Task Force on Practice Parameters: American Academy of Allergy, Asthma and Immunology; American Academy of Allergy, Asthma and Immunology; Joint Council of Allergy, Asthma and Immunology. Executive summary of disease management of drug hypersensitivity: a practice parameter. *Ann Allergy Asthma Immunol* 1999; **83:** S665–S700. Also available at: http://www.jcaai.readyportal.net/file_depot/0-10000000/20000-30000/27387/folder/63948/Drug_Allergy_1999.pdf (accessed 30/04/08)
21. Lieberman P, *et al.* Joint Task Force on Practice Parameters: American Academy of Allergy, Asthma and Immunology; American College of Allergy, Asthma and Immunology; Joint Council of Allergy, Asthma and Immunology. The diagnosis and management of anaphylaxis: an updated practice parameter. *J Allergy Clin Immunol* 2005; 115 (suppl 2): S483–S523. Also available at: http://www.jcaai.readyportal.net/file_depot/0-10000000/20000-30000/27387/folder/63948/Anaphylaxis_20051.pdf (accessed 30/04/08)
22. Al-Muhsen S, *et al.* Peanut allergy: an overview. *CMAJ* 2003; **168:** 1279–85. Correction. *ibid.*; 1529.

Diagnostic use. Sensitivity testing can be used to confirm that suspected allergens are mainly responsible for the symptoms of a suspected hypersensitivity reaction. It is necessary before patients with allergies are managed either by allergen avoidance or treated with allergen immunotherapy (see above). However, sensitivity testing should not form the sole basis of the treatment of hypersensitivity reactions.

Type IV (delayed) hypersensitivity reactions such as contact dermatitis are normally diagnosed using patch tests. A number of standard techniques are available, but in general they all involve maintaining a standard amount of the test substance in contact with the skin for 48 to 72 hours. A positive response is shown by erythema, swelling, or vesiculation. The sensitivity of different parts of the body varies, and this should be accounted for in applying test substances and controls. The test results are normally read 30 to 60 minutes after removal of the patches to allow any pressure effects of the patches to subside. Patch testing with mixtures of allergens may be necessary to diagnose contact dermatitis in patients hypersensitive to multiple allergens.

Type I (immediate) hypersensitivity reactions such as allergic rhinitis, allergic asthma, and insect-sting hypersensitivity are tested using skin-prick or intradermal tests. Since the allergen is introduced through the skin in these tests, the risk of systemic reactions is greater than patch testing, and adrenaline injection should be kept available. The skin-prick test involves pricking the epidermis through a drop of allergen in solution, and comparing the result after 15 to 20 minutes with positive and negative controls. This test is inexpensive and the results available rapidly. The intradermal (intracutaneous) test is used if the skin-prick test result does not agree with a strong clinical suspicion, although now that potent allergen extracts are used for skin-prick tests, the intradermal test offers few advantages and has greater risk of systemic reactions. Skin testing is unreliable for evaluating hypersensitivity to drugs, except for penicillins and for certain macromolecules. Skin test titration, that is testing with a series of dilutions, has been used to determine a safe starting dose for allergen immunotherapy.

Provocation tests are designed to reproduce symptoms of hypersensitivity by controlled exposure to a suspected allergen. They are used when skin or laboratory tests are unavailable, or IgE is not involved in the mechanism. Provocation may be by the bronchial, oral, nasal, or ocular routes. Facilities for full cardiopulmonary resuscitation should be immediately available.

In-vitro methods for measuring antigen-specific IgE include immunoassays such as the enzyme-linked immunosorbent assay (ELISA), which has now replaced the radioallergosorbent test (RAST). These tests can be used in place of skin-prick tests but they are expensive and the results not available as quickly.

References.

1. Anonymous. Allergen testing in patients with type I hypersensitivity. *Drug Ther Bull* 1995; **33:** 45–7. Correction. *ibid.*: 55.
2. Britton JER, *et al.* The British standard series of contact dermatitis allergens: validation in clinical practice and value for clinical governance. *Br J Dermatol* 2003; **148:** 259–64.
3. van Hage-Hamsten M, Pauli G. Provocation testing with recombinant allergens. *Methods* 2004; **32:** 281–91.
4. Gendo K, Larson EB. Evidence-based diagnostic strategies for evaluating suspected allergic rhinitis. *Ann Intern Med* 2004; **140:** 278–89.
5. Biló BM, *et al.* Diagnosis of Hymenoptera venom allergy. *Allergy* 2005; **60:** 1339–49.
6. Mowad CM. Patch testing: pitfalls and performance. *Curr Opin Allergy Clin Immunol* 2006; **6:** 340–4.
7. Bernstein IL, *et al.* American Academy of Allergy, Asthma and Immunology; American College of Allergy, Asthma and Immunology. Allergy diagnostic testing: an updated practice parameter. *Ann Allergy Asthma Immunol* 2008; **100** (suppl 3): S1–S148. Also available at: http://www.jcaai.org/file_depot/0-10000000/20000-30000/27387/folder/63948/PP_Allergy_Diagnostic_Testing_Dx_Testing_2008.pdf (accessed 30/04/08)

Preparations

Proprietary Preparations (details are given in Part 3)
Austral.: Albay; Allpyral; ***Belg.:*** Alyostal; Pharmalgen; Pollinex†; ***Braz.:*** Nikkho Vac; ***Canad.:*** Pollinex-R; ***Cz.:*** Alutard SQ; Alyostal; APSI/AQ†; ASAD†; D-Al; Grazax; H-AL; Pangramin; Pollinex; Soluprick SQ; Staloral; ***Denm.:*** Alutard SQ; Aquagen SQ; Pharmalgen; Sensitiner; Soluprick SQ; True Test; ***Fr.:*** Albey; Alyostal; ASAD†; Diallertest; ***Ger.:*** ALK; Allergovit; Depot-Hal; Novo-Helisen; Oralvac; Phostal; Pollinex Quattro; Pollinose S†; Purethal; Reless; Staloral; TA Baume; TA Graser; TA MIX; Tol; Tyrosin TU; Venomenhal; Venomil; ***Hung.:*** Lais; Pangramin; Purethal; Venomenhal; ***Israel:*** True Test; ***Ital.:*** Phostal; Staloral; ***Mex.:*** True Test†; ***Neth.:*** Allergopharma; Allergovit; Alutard; Artu; Artuvac; Bencard Priktestoplossing; Depot-Hal; Immunovac†; Novo-Helisen; Oralgen; Pharmalgen; Pollinex; Purethal; Soluprick SQ; Sublivac B.E.S.T.†; ***Norw.:*** Alutard; ***NZ:*** Albay; Allpyral†; True Test; ***Pol.:*** Allergovit; Alutard SQ; Alyostal; Catalet; Novo-Helisen; Perosall; Pharmalgen; Phostal; Pollinex; Purethal; Staloral; Venomenhal; ***Port.:*** Grazax; Polagen†; Soluprick; Truetest; ***S.Afr.:*** Albay; Albey; Allpyral Pure Mite; Allpyral Special Grass; EH Retard†; Tol†; ***Swed.:*** Alutard SQ; Aquagen SQ; Soluprick SQ; ***Switz.:*** Alavac-S†; ALK; Allergovit; Alutard SQ; Alyostal; ASAD†; Novo-Helisen; Pharmalgen; Phostal; Polvac; Staloral; ***UK:*** Bencard Skin Testing Solutions; Grazax; Pharmalgen; Pollinex; ***USA:*** Albay; Allpyral; Center-Al; Pharmalgen; True Test; Venomil.

Multi-ingredient: ***Arg.:*** Summavac; ***Braz.:*** Alergoral; Aminovac; Multigen AL†; Multivac VR†; Rhinovac†; Urtivac Vag Oral; ***Cz.:*** Apisarthron; Phostal; ***Fin.:*** Alutard SQ; Aquagen SQ; Soluprick SQ; ***Ger.:*** Alustal; BU Pangramin SLIT; Depigoid; Forapin E†; Slit One; Sublivac; ***Ital.:*** Alustal; ***Neth.:*** Trolab; Venomhal†; ***Rus.:*** Apisarthron (Апизартрон); ***Switz.:*** Alustal.

Almond Oil

Aceite de Almendra; Almendras dulces, aceite de; Amande, huile d'; Amygdalae oleum; Badem Yağı; Bitter Almond Oil; Expressed Almond Oil; Huile d'Amande; Mandelöl; Mandelolja; Mandlový olej; Mandulaolaj; Manteliöljy; Migdolų aliejus; Ol. Amygdal.; Olej migdałowy; Oleo de Amêndoas; Olio di Mandorla; Sweet Almond Oil.

CAS — 8007-69-0.

Pharmacopoeias. In *USNF.*

Eur (see p.vii) includes the virgin oil and a refined oil.

Fr. also specifies Huile de Noyaux, an oil obtained from various species of *Prunus.*

Ph. Eur. 6.2 (Almond Oil, Virgin; Amygdalae Oleum Virginale). A yellow, clear, liquid. It is the fatty oil obtained by cold expression from the ripe seeds of *Prunus dulcis* var. *amara* or *P. dulcis* var. *dulcis* or a mixture of both varieties. Slightly soluble in alcohol; miscible with petroleum spirit. Store in well-filled containers. Protect from light.

Ph. Eur. 6.2 (Almond Oil, Refined; Amygdalae Oleum Raffinatum). The fatty oil obtained by refining and deodorisation of Almond Oil. It may contain a suitable antoxidant. A pale yellow, clear, transparent liquid. Slightly soluble in alcohol; miscible with petroleum spirit. Store in well-filled containers. Protect from light.

USNF 26 (Almond Oil). The refined fixed oil expressed from the kernels of varieties of *Prunus dulcis* [*Prunus amygdalus*] (Rosaceae). It may contain suitable antoxidants. A clear, colourless or pale straw-coloured, oily liquid with a bland taste. Slightly soluble in alcohol; miscible with chloroform, with ether, with petroleum spirit, and with benzene. Store in well-filled, airtight containers. Protect from light.

Profile

Almond oil, which consists mainly of glycerides of oleic acid with smaller amounts of linoleic and palmitic acid, has nutritive and demulcent properties. It is used as an emollient and to soften ear wax. It is also used as a vehicle in some injections.

Preparations

BP 2008: Almond Oil Ear Drops;
USP 31: Rose Water Ointment.

Proprietary Preparations (details are given in Part 3)
Braz.: Laderm; ***Mex.:*** Dermoskin†.

Multi-ingredient: ***Arg.:*** Caien; ***Austral.:*** Curash Babycare; Snor-Away†; ***Chile:*** Akerat; ***Cz.:*** Balmandol; ***Ger.:*** Excipial; ***Ital.:*** Baby Zanzara; Babysteril; Otosan Natural Ear Drops†; Proctonet†; Stilomagic†; ***Mex.:*** Caliderm; Liniderm; ***NZ:*** Am-O-Lin; Snorenz; ***Port.:*** Cuidaderma; Olidermil; ***Spain:*** Pasta Lassar Imba; ***Switz.:*** Antidry; Balmandol; Premandol; Viola; Woloderma†; ***Turk.:*** Balmandol; Metamorfoz; ***UK:*** Calendula Nappy Change Cream; Earex; Imuderm; Infaderm; Snor-Away.

Alpha Galactosidase A

α-D-Galactosidase; α-Galactosidase A; α-D-Galactoside Galactohydrolase.

Agalsidase Alfa *(BAN, USAN, rINN)*

Agalsidasa alfa; Agalsidasum Alfa.

Агальсидаза Альфа

CAS — 104138-64-9 (protein moiety).
ATC — A16AB03.
ATC Vet — QA16AB03.

Agalsidase Beta *(rINN)*

Agalsidasum Beta; Agalsidaz Beta; Alfasidasa β.

Агальсидаза Бета

CAS — 104138-64-9 (protein moiety).
ATC — A16AB04.
ATC Vet — QA16AB04.

Adverse Effects, Treatment, and Precautions

IgG antibodies to agalsidase alfa develop in some patients, and to agalsidase beta in the majority of patients. The presence of antibodies increases the risk of infusion reactions. Infusion reactions have been reported in about 14% of patients given agalsidase alfa, and in about 67% of patients treated with agalsidase beta. The frequency of the onset of these reactions decreases with continued use, with the majority of reports occurring during the first 2-4 months after the start of treatment, although onset after 1 year has also been reported. Symptoms generally start during, or within 1 hour of, infusion. The most common symptoms have included chills, dyspnoea, facial flushing, headache, nausea, fever, and fatigue. The infusion may be interrupted for about 5 to 10 minutes and restarted once symptoms have subsided. Pretreatment with oral antihistamines, paracetamol, ibuprofen, and/or corticosteroids 1 to 24 hours before infusion has been used to prevent subsequent reactions. Patients with compromised cardiac function should be monitored closely since they may be predisposed to a higher risk of severe complications arising from infusion reactions.

Interactions

Agalsidase alfa or beta should not be used with amiodarone, chloroquine, monobenzone, or gentamicin, which all have the potential to inhibit intracellular α-galactosidase activity.

Pharmacokinetics

The pharmacokinetic properties of agalsidase alfa appear to be unaffected by dose; the elimination half-life from blood following a single dose has been reported to be about 100 minutes. The pharmacokinetics of agalsidase beta indicate a saturated clearance; the elimination half-life following a single dose has been reported to range from 45 to 100 minutes.

◊ Most pharmacokinetic parameters of agalsidase alfa in children with Fabry disease were similar to those in adult patients after single and repeated doses, except for serum clearance, which was age dependent being significantly increased in children.[1] However, there was no difference in pharmacodynamics between the age groups.

1. Ries M, *et al.* Enzyme replacement in Fabry disease: pharmacokinetics and pharmacodynamics of agalsidase alfa in children and adolescents. *J Clin Pharmacol* 2007; **47:** 1222–30.

Uses and Administration

Alpha galactosidase A is an endogenous enzyme that hydrolyses terminal α-D-galactose residues in oligosaccharides and galactolipids into more easily digestible mono- and disaccharides. A form derived from a fungal source is used to prevent intestinal gas.