LITERATURE REVIEW

Multilingual approach to the panel of aeroallergens suggested for skin prick testing in European Union patients

Florin-Dan Popescu[1,2], Mihaela Tamiian[2], Kinga Albert[2]

[1]Department of Allergology, "Carol Davila" University of Medicine and Pharmacy. Bucharest, Romania
[2]Department of Allergology and Clinical Immunology, "Nicolae Malaxa" Clinical Hospital, Bucharest, Romania

ABSTRACT

GA²LEN, Global Allergy and Asthma European Network, suggested a panel of aeroallergens for skin prick testing in all European patients. Communication is critical for European ENT specialists, allergists and their patients. The knowledge of this suggested skin prick battery in terms of the recommendations concerning allergen extracts, but also their names in European languages, is a practical approach, important in the context of European integration, increasing labor mobility and tourism.
KEYWORDS: aeroallergens, skin prick tests, European languages

INTRODUCTION

Europe is a continent with great linguistic diversity. Nowadays, the European Union Member States are (in parentheses being mentioned the year of entry)[1]: Austria (1995), Belgium (1952), Bulgaria (2007), Croatia (2013), Cyprus (2004), Czech Republic (2004), Denmark (1973), Estonia (2004), Finland (1995), France (1952), Germany (1952), Greece (1981), Hungary (2004), Ireland (1973), Italy (1952), Latvia (2004), Lithuania (2004), Luxembourg (1952), Malta (2004), The Netherlands (1952), Poland (2004), Portugal (1986), Romania (2007), Slovakia (2004), Slovenia (2004), Spain (1986), Sweden (1995) and United Kingdom (1973). The European Union has twenty-four official and working languages[2]. They are: Bulgarian (bg, български), Czech (cs, čeština), Danish (da, dansk), German (de, Deutsch), Estonian (et, eesti keel), Greek (el, ελληνικά), English (en), Spanish (es, español), French (fr, français), Irish (ga, Gaeilge), Croatian (hr, hrvatski), Italian (it, italiano), Latvian (lv, latviešu valoda), Lithuanian (lt, lietuvių kalba), Hungarian (hu, magyar), Maltese (mt, Malti), Dutch (nl, Nederlands), Polish (pl, polski), Portuguese (pt, português), Romanian (ro, română), Slovak (sk, slovenčina), Slovene (sl, slovenščina), Finnish (fi, suomi) and Swedish (sv, svenska). This number is lower than the number of Member States, as some of them have the same language. For example, in Belgium, the official languages are Dutch, French and German, whilst in Cyprus the majority of the people speak Greek (language with official status).

In accordance with the European Union population, the most widely spoken mother tongue is German, followed by English, Italian, French, Spanish and Polish[2]. The most widely spoken foreign languages are English, French, German and Spanish.

According to the Special Eurobarometer 386 survey[3], conducted in 2012, Europeans have a very positive attitude towards multilingualism. Almost all Europeans believe that mastering foreign languages is an important issue for the future of their children, while many consider it also useful for themselves. Moreover, about three-quarters of European respondents agree with an objective of the European Union that all Europeans should learn at least two foreign languages. Along with English, the languages most

Corresponding author: Florin-Dan Popescu, MD, PhD, Associate Professor, Head of Department of Allergology, University of Medicine and Pharmacy "Carol Davila" Bucharest, Romania, Address: "Nicolae Malaxa" Clinical Hospital, 12 Sos. Vergului, Bucharest, Sector 2, Romania
e-mail: florindanpopescu@allergist.com

often cited as the most useful are German, French and Spanish.

In this European spirit, the communication between allergy and ENT specialists and communication between specialists with their patients is essential. The right to free movement across the European Union, increasing labor mobility and tourism, make specialists and their patients to adapt to the complex needs of linguistic communication and common scientific language.

Allergy skin prick tests to aeroallergens are widely used for IgE-mediated allergic hypersensitivity assessment in order to highlight the causative airborne allergens. They are a very important diagnostic tool for respiratory allergies. Since there are many complex issues in performing and especially in their interpretation, they should be indicated, performed and interpreted by allergy practitioners.

PANEL OF AEROALLERGENS FOR SKIN PRICK TESTING

GA²LEN, Global Allergy and Asthma European Network of excellence in the field of Allergy and asthma, associated with the European Academy of Allergy and Clinical Immunology (EAACI), suggested a panel of aeroallergens for skin prick testing in all European patients[4,5].

House dust mites belong to the phylum of *Arthropoda*, family *Pyroglyphidae*, and the most important species are *Dermatophagoides pteronyssinus* and *Dermatophagoides farinae*. GA²LEN suggested panel of aeroallergens for skin prick testing in European patients includes these two house dust mites, the most important mite species in temperate regions[4]. The English term of house dust mites (en) may be translated in the Romance languages[2]: acarieni din praf de casă (ro), acariens de la poussière de maison (fr), acari della polvere di casa (it), ácaros del polvo doméstico (es), ácaros da poeira doméstica (pt); in other Germanic languages: hausstaubmilben (de), husstøvmide (da), huisstofmijt (nl), husdammskvalster (sv); in Slavic languages: домашният акар (bg), roztocze kurzu domowego (pl), prachový roztoč (cs), roztoče bytového prachu (sk), grinje kućne prašine (hr), hišni prah pršice (sl); in Baltic languages: namų dulkių erkė (lt), mājas putekļu ērcītes (lv); in Finno-Ugric languages: házi poratka (hu), pölypunkit (fi), tolmulestasid (et); and in Celtic, Semitic and Hellenic languages: fíneoga deannaigh teach (ga), akari tat-trab dar (mt), ακάρεα της οικιακής σκόνης (el).

Animal aeroallergens of small mammal pets from the order *Carnivora* (epithelia/dander) belong to the *Felidae* family: *Felis catus* syn. *F. domesticus* (domestic cat) and *Canidae* family: *Canis lupus familiaris* syn. *Canis familiaris* (dog). GA²LEN suggested panel of aeroallergens for skin prick testing in European patients includes these two types of companion animals' epithelia[4]. Domestic cats and dogs are the most popular pets. The English word cat (en) is translated as follows in the Romance languages: pisică (ro), chat (fr), gatto (it), gato (es, pt); in other Germanic languages: katze (de), kat (da, nl), katt (sv); in Slavic languages: котка (bg), kot (pl), kočka (cs), mačka (hr, sl, sk); in Baltic languages: katė (lt), kaķis (lv); in Finno-Ugric languages: macska (hu), kissa (fi), kass (et); and in Celtic Semitic and Hellenic languages: cat (ga), qattus (mt), γάτα (el). The English word dog (en) is translated as follows in the Romance languages: câine (ro), chien (fr), cane (it), perro (es), cão (pt); in other Germanic languages: hund (de, da, sv), hond (nl); in Slavic languages: куче (bg), pies (pl), pes (cs), pas (hr, sl, sk); in Baltic languages: šuo (lt), suns (lv); in Finno-Ugric languages: kutya (hu), koira (fi), koer (et); and in Celtic, Semitic and Hellenic languages: madra (ga), kelb (mt), σκύλος (el)[2].

Regarding inhalant household pest insect allergens in Europe, the most important urban indoor ones derive from domestic cockroach species. GA²LEN suggested panel of aeroallergens for skin prick testing[4], in European patients also includes allergens from *Blattella* sp. As for cockroach (eng), the translations are in the Romance languages: gândac de bucătărie (ro), blatte, cafard, cancrelat (fr), blatta, scarafaggio (it), cucaracha (es), barata (pt); in other Germanic languages: schabe (de), kakerlak (da), kakkerlak (nl), kackerlacka (sv); in Slavic languages: хлебарки (bg), karaluch, karaczan (pl), šváb (cs, sk), bubašvaba, žohar (hr), ščurek (sl); in Baltic languages: tarakonas (lt), tarakāns, prusaks (lv); in Finno-Ugric languages: csótány, svábbogár (hu), torakka, russakka (fi), prussakas (et); and in Celtic, Semitic and Hellenic languages: blatóg (ga), wirdiena, kokroċ (mt), κατσαρίδα (el).

Fungi most frequently involved in allergic IgE-mediated sensitization[5,6] are molds belonging to the phylum *Ascomycota*, family *Pleosporaceae: Alternaria alternata* syn. *A. tenuis*, family *Davidielaceae*: *Cladosporium herbarum, Cladosporium cladosporioides,* both being predominantly outdoor molds. GA²LEN suggested panel of aeroallergens for skin prick testing in European patients includes aeroallergens of fungal origin from molds belonging to the phylum *Ascomycota*: *Alternaria alternata, Cladosporium* spp. *Aspergillus* spp may be an important allergen in severe asthma, but not available in some countries. The English words fungus and mold (en) may be translated as follows in the Romance languages: fung, mucegai (ro), fongus, moisissure (fr), fungo, muffa (it), hongo, moho (es), fungo, mofo (pt); in other Germanic languages: pilze,

schimmelpilze (de), svampe, skimmelsvamp (da), svampar, mögel (sv), zwam, schimmel (nl); in Slavic languages: гъби, плесен (bg), grzyb, pleśniowych (pl), houby, plíseň (cs), gljiva, plijesan (hr), gliva, plesen (sl), huba, pleseň (sk); in Baltic languages: grybas, pelėsiai (lt), sēne, pelējums (lv); in Finno-Ugric languages: gombaféle, penészgombák (hu), sieni, home (fi), seen, hallitusseened (et); and in Celtic, Semitic and Hellenic languages: fungas, múscán (ga), fungu, moffa (mt), σπόγγος, μύκητες (el).

GA²LEN[4] suggested panel of aeroallergens for skin prick testing in European patients necessarily includes aeroallergens of anemophilous plant **pollen** origin, such as tree/shrubs: birch *Betula* sp or mixed *Betulaceae,* ash *Fraxinus excelsior* or olive *Olea europaea*, cypress *Cupressus sempervirens* or *Cupressaceae* sp, plane *Platanus* sp; grasses from *Poaceae* (*Gramineae*) family: timothy grass (*Phleum pratense*), orchard grass or cock's foot grass (*Dactylis glomerata*), perennial ryegrass (*Lolium perenne*), smooth meadow grass or bluegrass (*Poa pratensis*), sweet vernal grass (*Anthoxanthum odoratum*); and weeds belonging to *Asteraceae* (*Compositae*) family: ragweed *Ambrosia elatior*, mugwort *Artemisia vulgaris*), and to *Urticaceae* family: pellitory-of-the-wall *Parietaria officinalis.* The English term of pollen (en) is translated in the Romance languages: polen (ro), pollen (fr), polline (it), polen (es), pólen (pt); in other Germanic languages: pollen (de, da, nl, sv), stuifmeel (nl); in Slavic languages: полен (bg), pyłek (pl), pyl (cs), pel' (sk), pelud (hr), cvetni prah (sl)**;** in Baltic languages**:** žiedadulkė (lt), putekšņi (lv); in Finno-Ugric languages: pollen, virágpor (hu), siitepöly (fi), õietolm (et); and in Celtic, Semitic and Hellenic languages: pailin (ga), pollin (mt), γύρη (el).

Birch is a tree of the genus *Betula*, in the family *Betulaceae. Betula pendula* (syn. *Betula verrucosa*) is the European white birch, while *Betula pubescens* (syn. *Betula alba*) is the downy birch. Birch is named in the Romance languages: mesteacăn (ro), bouleau (fr), betulla (it), abedul (es), bétula (pt); in other Germanic languages: birke (de), birk (da), berk (nl), björk (sv); in Slavic languages: бреза (bg), brzoza (pl), breza (hr, sl, sk), bříza (cs), in Baltic languages: bērzs (lv), beržas (lt); in Finno-Ugric languages: nyír (hu), koivu (fi), kask (et); and in Celtic, Semitic and Hellenic languages: beith (ga), betula (mt), σημύδα (el).

Ash is a tree of the genus *Fraxinus*, in the family *Oleaceae. Fraxinus excelsior* is the European ash. Ash is named in the Romance languages: frasin (ro), frêne (fr), frassino (it), fresno (es), freixo (pt); in other Germanic languages: esche (de), ask (da, sv), es (nl); in Slavic languages: ясен (bg), jesion (pl), jasan (cs), jasen (hr), jesen (sl), jaseň (sk); in Baltic languages: ošis (lv), uosis (lt); in Finno-Ugric languages: kőris (hu), saarni (fi), saar (et); and in Celtic, Semitic and Hellenic languages: fuinseog (ga), fraxxnu (mt), μελιά, φραξός (el).

Olive, *Olea europaea*, is a species of small tree also in the family *Oleaceae*, native to the Mediterranean region. Olive is named in the Romance languages: măslin (ro), olivier (fr), oliva (it), olivera (es), oliveira (pt); in other Germanic languages: ölbaum, olivenbaum (de), oliven (da), oliv (sv), olijfboom (nl); in Slavic languages: маслините (bg), oliwka (pl), olivovník (cs, sk), maslina (hr), oljka (sl); in Baltic languages: olīvkoks (lv), alyvmedis (lt); in Finno-Ugric languages: oliva, olajfa (hu), öljypuu (fi), õlipuu (et); and in Celtic, Semitic and Hellenic languages: ológ (ga), żebbuġa (mt), ελιά (el).

Plane is a tree of the genus *Platanus*, in the family *Platanaceae.* Plane may be translated in the Romance languages: platan (ro), platane (fr), platano (it), plátano (es, pt); in other Germanic languages: platanen (de), platan (da), plataan (nl), platansläktet (sv); in Slavic languages: платан, чинар (bg), platan (pl, cs, sk), platane (hr), platana (sl); in Baltic languages: platana (lv), platanas (lt); in Finno-Ugric languages: platán (hu), plataanipuu (fi), plaatan (et); and in Celtic, Semitic and Hellenic languages: plána (ga), siġra tad-dorf (mt), πλάτανος (el).

The genus *Cupressus* is one of several genera within the family *Cupressaceae* that have the common name **cypress**. The name of this gymnosperm may be translated in the Romance languages: chiparos (ro), cyprès (fr), cipresso (it), ciprés (es), cipreste (pt); in other Germanic languages: zypresse (de), cypres (da), cipres (nl), cypress (sv); in Slavic languages: кипарис (bg), cyprys (pl), cypřiš (cs), cyprus (sk), čempres (hr), ciprese (sl); in Baltic languages: ciprešu (lv), kiparisas (lt); in Finno-Ugric languages: ciprus (hu), sypressi (fi), küpress (et); and in Celtic, Semitic and Hellenic languages: cúfróg (ga), cipress (mt), κυπαρίσσι (el).

Abundant allergenic **grass** pollen originates from tall grasses, such as *Phleum pratense* and *Dactylis glomerata. Lolium perenne* is a native grass in Europe, but is also widely cultivated.

For the taxonomic Latin name ***Phleum pretense***, common names of this grass belonging to the *Pooideae* subfamily are in the Romance languages: timoftică (ro), fléole des prés (fr), Timoteo, fleo (it), fleo de los prados, hierba timotea (es), grama timóteo (pt); in Germanic languages: Timothy-grass, timothy, meadow cat's-tail, common cat's tail (en), wiesen-lieschgras (de), eng-rottehale, timoté (da), timoteegras (nl), timotej (sv); in Slavic languages: ливадна тимотейка (bg), Tymotka łąkowa (pl), bojínek luční (cs), Timotejka (sk), livadna mačica (hr), mačjega repa (sl); in Baltic languages: pašarinių motiejukų (lt), pļavas timotiņa (lv); in Finno-Ugric languages: réti komócsin, mezei komócsin (hu), nurmitähkiö,

timotei (fi), põldtimut (et); and in Celtic, Semitic and Hellenic languages: Tiomóid, féar capaill (ga), ħaxix ta' l-għalf (mt), φλέον το λειμώνιο (el)[2,4].

For the taxonomic Latin name ***Dactylis glomerata***, common names of this grass belonging to the *Pooideae* subfamily are in the Romance languages: golomăț (ro), dactyle pelotonné, dactyle aggloméré (fr), dattile (it), dáctilo, pasto ovillo (es), dactilo, panasco (pt); in Germanic languages: orchard grass or cock's foot grass (en), wiesen-knäuelgras gewöhnliche knäuelgras (de), hundegræs (da), kropaar (nl), hundäxing (sv); in Slavic languages: ежовата главица (bg), kupkówka pospolita (pl), srha laločnatá (cs), reznačka laločnatá (sk), klupčasta oštrica (hr), navadna pasja trava (sl); in Baltic languages: paprastoji šunažolė (lt), parastā kamolzāle (lv); in Finno-Ugric languages: csomós ebír (hu), koiranheinä (fi), harilik kerahein (et); and in Celtic, Semitic and Hellenic languages: garbhfhéar (ga), ħaxix tal-mergħat (mt), χλόη κήπου, χλόη δενδρόκηπου (el).

For the taxonomic Latin name ***Lolium perenne***, common names of this grass belonging to the *Pooideae* subfamily are in the Romance languages: iarbă de gazon, raigras englezesc, zâzanie (ro), ivraie vivace, ray-grass anglais (fr), loietto perenne, loglio (it), ballica inglesa, ballico, raigrás perenne (es), azevém perene (pt); in Germanic languages: perennial ryegrass (en), Deutsche weidelgras (de), Almindelig rajgræs (da), Engels raaigras (nl), Engelskt rajgräs (sv); in Slavic languages: пасищен райграс (bg), życica trwała (pl), jílek vytrvalý (cs), mätonoh trváci (sk), engleskog ljulja (hr), trajnica ljuljka (sl); in Baltic languages: daugiamečių svidrių (lt), daudzgadīgo aireni (lv); in Finno-Ugric languages: angolperje (hu), englanninraiheinä (fi), karjamaa-raihein (et); and in Celtic, Semitic and Hellenic languages: seagalach buan (ga), sikrana perenni (mt), λόλιο, ήρα πολυετής (el).

Important allergenic weed pollen in Europe originates from wind-pollinated *Asteraceae* ruderal and segetal vascular plants, such as *Artemisia vulgaris* and *Ambrosia artemisiifolia* var. *elatior*, and the *Urticaceae* weed *Parietaria officinalis*.

For the taxonomic Latin name *Ambrosia artemisiifolia* (Linnaeus) or ***Ambrosia artemisiifolia* var. *elatior*** (Descourt), common names of this weed belonging to the *Asteraceae* family are in the Romance languages : floarea pustei, iarba pârloagelor (ro), ambroisie annuelle, ambroisie à feuille d'armoise, ambrosia aux feuilles d'armoise (fr), ambrosia con foglie di atremisia (it), ambrosia de hojas de ajenjo, ajenjo del país (es), ambrósia, tasna (pt); in Germanic languages: annual ragweed, common ragweed, short ragweed, small ragweed, bitterweed, roman wormwood (en), aufrechte ambrosie, beifußambrosie, aufrechtes traubenkraut, hohes traubenkraut (de), bynke-ambrosie (da), alsemambrosia (nl), malörstambrosia (sv); in Slavic languages: амброзия (bg), ambrozja bylicolistna, ambrozja bylicowata (pl), ambrozie peřenolistá (cs), ambrózia palinolistá (sk), ambrozija, pelinolisni limundžik (hr), pelinolistna ambrozija (sl); in Baltic languages: kietinė ambrozija (lt), vermellapu ambrozija (lv); in Finno-Ugric languages: parlagfű (hu), marunatuoksukki (fi), pujulehine ambroosia (et), and in Semitic and Hellenic languages: ambrosja (mt), αμβροσία κοινή (el).

For the taxonomic Latin name ***Artemisia vulgaris***, common names of this weed belonging to the *Asteraceae* family are in the Romance languages: pelinariță, peliniță neagră (ro), armoise commune, armoise vulgaire, herbe de la Saint-Jean anique, artémise (fr), artemisia comune (it), artemisa común, artemisa vulgar, artemega, ceñidor, hierba de San Juan (es), artemísia-comun, artemíge, erva-de-são-joão, artemijo, absintio (pt); in Germanic languages: mugwort, common wormwood (en), gewöhnlicher beifuß, gemeiner beifuß (de), grå-bynke (da), bijvoet (nl), gråbo (sv); in Slavic languages: див пелин (bg), bylica pospolita (pl), crni pelin (hr), pelyňku černobýlu (cs), palina obyčajná (sk), navadni pelin (sl); in Baltic languages: parasta vībotne (lv), paprastasis kietis (lt); in Finno-Ugric languages: fekete üröm (hu), pujo, pujon (fi), puju (et); and in Celtic, Semitic and Hellenic languages: Mongach meisce (ga), assenzju (mt), αρτεμισία (el).

For the taxonomic Latin name ***Parietaria officinalis***, common names of this weed belonging to the *Urticaceae* family are in the Romance languages: parachericță (ro), perce-muraille, casse-pierre, espargoule, gamberoussette, herbe à bouteille (fr), erba vetriola, erba vento, gamba rossa, muraiola (it), albahaca de culebra, cañarroya, caracolera, caragolera, hierba del muro, morella roquera, parietària, urtiga mansa (es), alfavaca-de-cobra, alfavaca-da-cova, erva-fura-paredes, erva-das-muralhas, erva-de-santa-Ana, parietária (pt); in Germanic languages: pellitory-of-the-wall, lichwort (en), aufrechte glaskraut (de), almindelig springknap (da), groot glaskruid (nl), väggört (sv); in Slavic languages: pomurnik lekarski (pl), crkvina (hr); in Baltic languages: sienžolė (lt); in Finno-Ugric languages: közönséges falgyom (hu), juudinõges (et); and in Celtic, Semitic and Hellenic languages: feabhraíd (ga), xeħt ir-riħ komuni (mt), περδικάκι (el).

The standardized allergen battery presented should be recommended for clinical use and research across Europe. Sometimes, it is proposed that the panel of aeroallergens tested depends on the allergen exposure of the area. However, allergic patients are travelling across European countries, new sensitizations are found in relation to climate change and crossreactivities may be unsuspected.

Some regionally dominant wind-pollinated plant pollen extracts are not included in this panel, but may be **additionally used** in some areas, for example semi-arid *Chenopodiaceaae/ Amaranthaceae* weeds, such as *Salsola kali*, or warm temperate/subtropical grasses, such as *Cynodon dactylon*. It is useful to test such allergens depending on local climate, but possibly not to use them in a pan-European skin test battery.

For the taxonomic Latin name *Cynodon dactylon*, common names of this grass belonging to the *Chloridoideae* subfamily, *Poaceae* family, are in the Romance languages: iarba-câinelui, pir-gros (ro), chiendent dactyle, gros chiendent (fr), grama-seda, gramigna comune, gramigna rossa (it), grama común, agram, gram, césped, agramen (es), grama-bermudas, escalracho, grama seda, grama das boticas, grama digitada, gramâo (pt); in Germanic languages: Bermuda grass, bermudagrass, dog's tooth grass, Bahama grass, devil's grass (en), Bermudagras, finger-hundszahn, hundszahngras (de), handjesgras (nl), hundtandsgräs, Bermudagräs (sv); in Slavic languages: бермудска трева (bg), psi ząb palczasty (pl), obična zubača (hr), troskut prstnatý (cs), prstnatec obyčajný (sk); in Finno-Ugric languages: csillagpázsit (hu), sormiheinä, varvasheinä (fi); in Celtic, Semitic and Hellenic languages: Beirmiúda féar (ga), nigem (mt), αγριάδα (el)[2].

For the taxonomic Latin name *Salsola kali* or *Salsola tragus*, common names of this weed belonging to the *Amaranthaceae* family are in the Romance languages: ciurlan, ciulin rusesc, săricică, salcicorn (ro), soude brûlée, soude épineuse, soude roulante (fr), salsola erba-cali (it), barrella punxosa, barrella borda, barrella espinosa, espinadella (es), barrilha espinhosa, barrilha-espinhosa, barrilheira (pt); in Germanic languages: common saltwort, prickly saltwort, prickly glasswort, Russian thistle, Russian tumbleweed, Russian-cactus (en), kali-salzkraut, kalikraut, strand-salzkraut, Ukraine salzkraut (de), almindelig sodaurt (da), stekend loogkruid (nl), sodaört (sv); in Slavic languages: вълмо, корай, луга (bg), solanka kolczysta (pl), slankasta solnjača (hr), slanobyľ draslomilná (sk); in Baltic languages: smiltyninė druskė (lt); kālija sālszāle (lv); in Finno-Ugric languages: homoki ballagófű (hu), rand-ogamalts (et), meriotakilokki (fi); and in Celtic, Semitic and Hellenic languages: lus an tsalainn (ga), ħaxixa tal-irmied xewwikija (mt), ρωσικό αγκάθι (el)[2].

Skin prick tests with aeroallergen extracts represent the first diagnostic method in patients with a suggestive clinical history of allergic rhinitis or rhinoconjunctivitis, with or without asthma. GA²LEN suggested panel of aeroallergens for skin prick testing in European patients was written to give answers to frequent questions raised by practitioners and patients[7,8].

CONCLUSIONS

In conclusion, communication and information exchange is a critical factor for European ENT specialists, allergists and their patients. The knowledge of the GA²LEN suggested panel in terms of the recommendations concerning allergen extracts, but also their names in European languages, is a practical approach, important in the context of European integration, increasing labor mobility and tourism.

REFERENCES

1. Bousquet J, Heinzerling L, Bachert C, Papadopoulos NG, Bousquet PJ, Burney PG, Canonica GW, Carlsen KH, Cox L, Haahtela T, Lodrup Carlsen KC, Price D, Samolinski B, Simons FE, Wickman M, Annesi-Maesano I, Baena-Cagnani CE, Bergmann KC, Bindslev-Jensen C, Casale TB, Chiriac A, Cruz AA, Dubakiene R, Durham SR, Fokkens WJ, Gerth-van-Wijk R, Kalayci O, Kowalski ML, Mari A, Mullol J, Nazamova-Baranova L, O'Hehir RE, Ohta K, Panzner P, Passalacqua G, Ring J, Rogala B, Romano A, Ryan D, Schmid-Grendelmeier P, Todo-Bom A, Valenta R, Woehrl S, Yusuf OM, Zuberbier T, Demoly P; Global Allergy and Asthma European Network; Allergic Rhinitis and its Impact on Asthma. Practical guide to skin prick tests in allergy to aeroallergens. Allergy. 2012; 67(1): 18-24.
2. Online dictionaries and databases: ec.europa.eu/languages, eur-lex.europa.eu, ww2.bgbm.org, www.bgflora.net, www.botanicgardens.ie, www.eudict.com, www.eze.org.gr, www.feedipedia.org, www.irishwildflowers.ie, www.issg.org, www.maltawildplants.com, www.wikipedia.org, www.wordsense.eu
3. Special Eurobarometer 386. Europeans and their languages. Conducted by TNS Opinion & Social at the request of Directorate-General Education and Culture, Directorate-General for Translation and Directorate-General for Interpretation. Survey co-ordinated by the European Commission, Directorate-General for Communication (DG COMM "Research and Speechwriting" Unit).
4. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens WJ, Togias A, Zuberbier T, Baena-Cagnani CE, Canonica GW, van Weel C, Agache I, Aït-Khaled N, Bachert C, Blaiss MS, Bonini S, Boulet LP, Bousquet PJ, Camargos P, Carlsen KH, Chen Y, Custovic A, Dahl R, Demoly P, Douagui H, Durham SR, van Wijk RG, Kalayci O, Kaliner MA, Kim YY, Kowalski ML, Kuna P, Le LT, Lemiere C, Li J, Lockey RF, Mavale-Manuel S, Meltzer EO, Mohammad Y, Mullol J, Naclerio R, O'Hehir RE, Ohta K, Ouedraogo S, Palkonen S, Papadopoulos N, Passalacqua G, Pawankar R, Popov TA, Rabe KF, Rosado-Pinto J, Scadding GK, Simons FE, Toskala E, Valovirta E, van Cauwenberge P, Wang DY, Wickman M, Yawn BP, Yorgancioglu A, Yusuf OM, Zar H, Annesi-Maesano I, Bateman ED, Ben Kheder A, Boakye DA, Bouchard J, Burney P, Busse WW, Chan-Yeung M, Chavannes NH, Chuchalin A, Dolen WK, Emuzyte R, Grouse L, Humbert M, Jackson C, Johnston SL, Keith PK, Kemp JP, Klossek JM, Larenas-Linnemann D, Lipworth B, Malo JL, Marshall GD, Naspitz C, Nekam K, Niggemann B, Nizankowska-Mogilnicka E, Okamoto Y, Orru MP, Potter P, Price D, Stoloff SW, Vandenplas O, Viegi G, Williams D; World Health Organization; GA2LEN; AllerGen. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update (in collaboration with the World Health Organization, GA2LEN and AllerGen). Allergy. 2008; 63 Suppl 86: 8-160.
5. Cox L, Williams B, Sicherer S, Oppenheimer J, Sher L, Hamilton R, Golden D; American College of Allergy, Asthma and Immunology Test Task Force; American Academy of Allergy, Asthma and Immunology Specific IgE Test Task Force. Pearls and pitfalls of allergy diagnostic testing: report from the American College of Allergy, Asthma and Immunology/American Academy of Allergy, Asthma and Immunology

Specific IgE Test Task Force. Ann Allergy Asthma Immunol. 2008; 101(6): 580-592.

6. Demoly P, Bousquet J, Romano A. In vivo methods for the study of allergy. In: Adkinson NF Jr, Bochner BS, Busse WW, Holgate ST, Lemanske RF Jr, Simons FER, editors. Middleton's Allergy, Principles and Practice, Seventh Edition. Philadelphia, PA: Mosby Elsevier Inc, 2009: 1267-1280.
7. Heinzerling L, Frew AJ, Bindslev-Jensen C, Bonini S, Bousquet J, Bresciani M, Carlsen KH, van Cauwenberge P, Darsow U, Fokkens WJ, Haahtela T, van Hoecke H, Jessberger B, Kowalski ML, Kopp T, Lahoz CN, Lodrup Carlsen KC, Papadopoulos NG, Ring J, Schmid-Grendelmeier P, Vignola AM, Wöhrl S, Zuberbier T. Standard skin prick testing and sensitization to inhalant allergens across Europe - a survey from the GA2LEN network. Allergy. 2005; 60(10): 1287-1300.
8. Sekerel BE, Sahiner UM, Bousquet J, Demoly P, Zuberbier T, Carlsen KH, Wickman M. Practical guide to skin prick tests in allergy to aeroallergens: some concerns. Allergy. 2012; 67(3):442; author reply 443.