

## Allergies - from clinical history and symptoms to diagnosis and therapy



Dr. Regina Wagner  
Fachärztin für Dermatologie

LABOKLIN GmbH & Co. KG, Bad Kissingen, Deutschland

## Pruritus

### primary

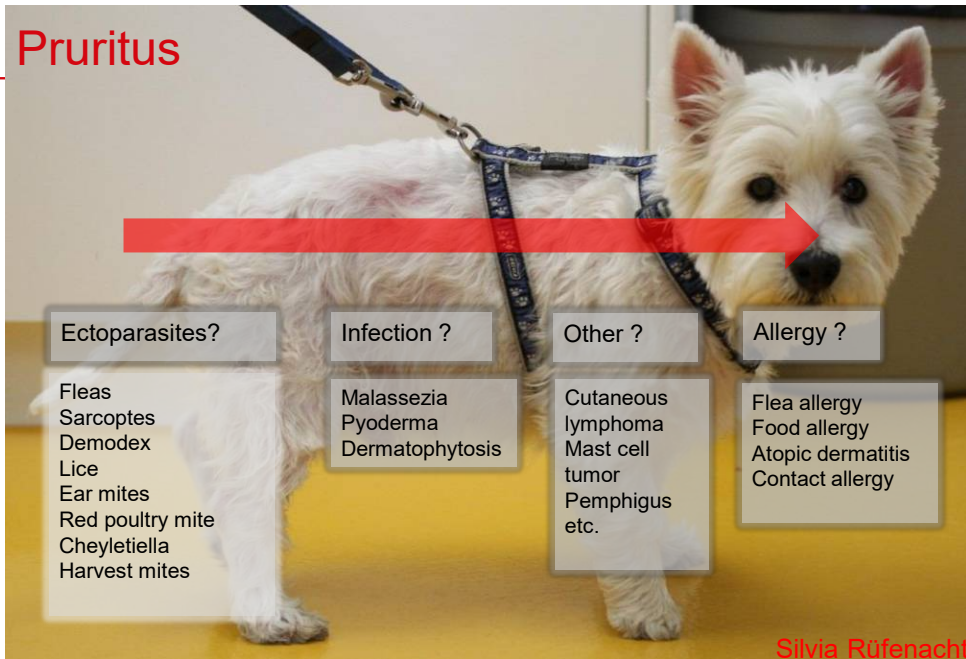
- Allergy
- Ectoparasites
- Tumors
  - Epitheliotropic lymphoma
  - Mast cell tumor
- Pemphigus
- Calcinosis cutis

### secondary

- Secondary infection
  - Bacteria
  - Malassezia

- Dermatophytosis
- Demodicosis

## Pruritus



## Allergy

### Definition:

- An **allergy** (Greek αλλεργία, “foreign reaction”) is an excessive defense reaction of the immune system to certain and normally harmless environmental substances (allergens).

## Allergen

---

### Definition:

- ...is a substance that triggers hypersensitivity reactions.
- ...refers to an antigen that triggers an allergic immune response.
- **Antigens** (English: **antibody generating**) are substances to which antibodies can bind and thereby trigger an immune response.

## Allergies in Dogs/Cats

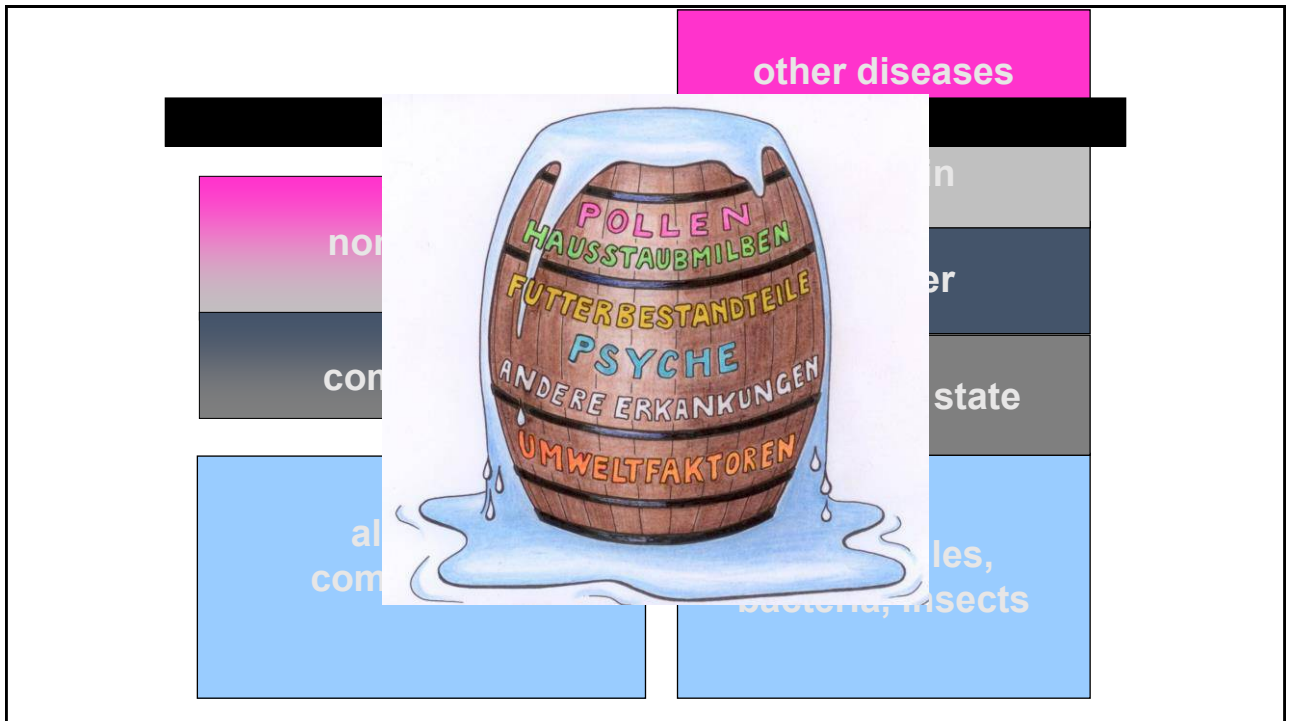
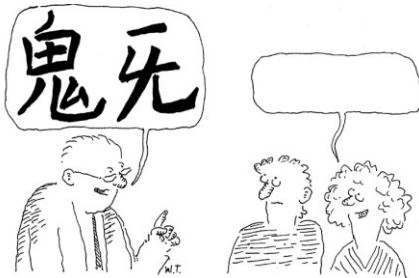
---

1. Atopic dermatitis
  - Grasses, herbs, tree pollen, mites, molds, epithelia
2. Food allergy / intolerance
  - Component of the diet, smallest amounts!
3. Flea allergy
  - One flea bite is sufficient
4. Insect allergy: dog, cat
  - Insect bites, especially mosquitoes
5. Special forms
  - Drug allergy, contact allergy
  - Respiratory allergy (especially cats)

# Allergy Diagnostics

- Atopic dermatitis
- Food allergy / intolerance
- Flea allergy
- Insect allergy
- Medical history!
- Clinical presentation
- Differential diagnosis
- Consultation
- Diagnostics
- Treatment

# Clinical Diagnosis!!



## Food intolerance

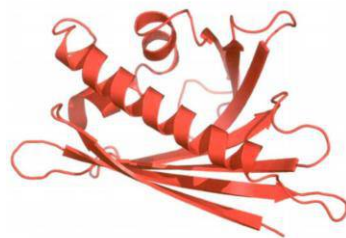
---

- Frequently used synonymously:
  - Food allergy
  - Food intolerance (non-immunological)
  - Allergic skin reactions to food components
  - Cutaneous adverse food reaction (CAFR)
  - CAFR with clinical symptoms of CAD = FIAD (food-induced atopic dermatitis)
- In 1922, Phillips reported angioedema in a food-allergic dog

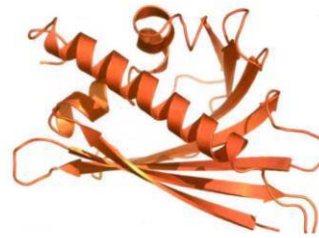
## Allergen cross-reactions

---

- Similar allergens – similar epitopes
  - -> cross-reaction
- A cross-reaction is defined as a reaction not only to the allergen already known and defined as allergy-inducing, but also to a completely different substance that has similar protein structures (epitopes).
- The body's immune system cannot distinguish these structures and therefore reacts to both with corresponding symptoms.



Majorallergen Mal d 1 (Apfel)



Majorallergen Bet v 1 (Birkenpollen)

*Betula verrucosa*

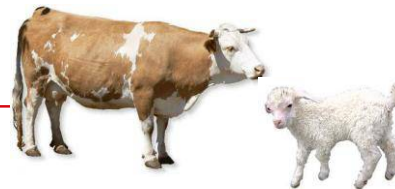


PR 10-Proteine



**Abb. 1:** Ähnlichkeit des Birkenpollenallergens Bet v 1 und des Apfelallergens Mal d 1 (Huss-MARP, 2011)

## Other cross-reactions



- Cow's milk – goat's milk (50%)
- Hen's egg – chicken meat
- Pollen – nuts of the tree (e.g. hazel)
- Beef Bos d 7 – also in lamb, deer, milk
  
- Tomato – Japanese cedar
- Oral allergy syndrome (OAS)
  - *Birch pollen – raw potato, carrot, celery, apple, pear, hazelnut and kiwi*

(Martin, Vet Derm 2004, Bexley 2016)

## Hidden allergens

- Casein, whey, lactose, gelatin
- Flavored medications!!!!
- Additives



## Food allergy – history

- Any age (puppy – 12-year-old dogs)
- Regardless of how long the food has been fed
- Diarrhea
- Frequency of defecation
- Response to corticosteroids (50%)
- Not seasonal



→ **Difference to atopy: age, intestinal involvement, poor response to corticosteroids**

## Food allergy – symptoms – skin

- Pruritus (sine materia)
- Secondary skin lesions
- Pyotraumatic dermatitis (hot spot)
- Lick granuloma
- Ears, paws
- May look exactly like CAD or FAD

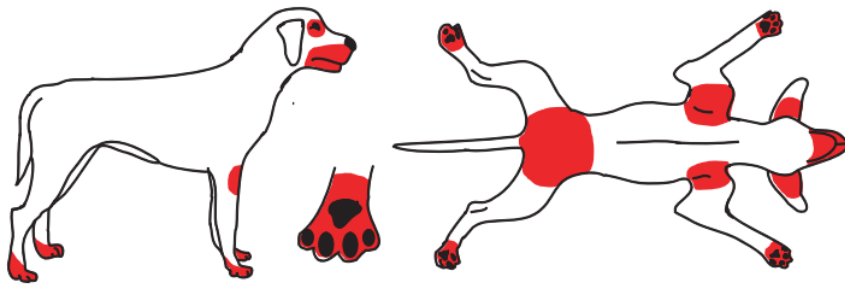


Fig. 8 Common distribution of clinical lesions and pruritus associated with canine AD and food allergy

## Distribution of pruritus and skin lesions

Symptom	percent
Ears involved	80%
<b>Ears alone</b>	<b>24%</b>
Paws	61%
Inguinal	53%
Axilla	37%
Periorbital	31%
Muzzle	31%



## Food allergy – symptoms – extracutaneous

- Gastrointestinal
  - Diarrhea
  - Frequent defecation
  - Constipation
  - Flatulence etc.
- Neurological (epilepsy)
- Respiratory  
(rare, often in combination with AD)



## Food allergy – symptoms – extracutaneous

- Other, often overlooked...
- Lupoid onychodystrophy
  - Perianal fistulas
  - Vasculitis



## Diagnosis of food allergy/intolerance

The gold standard for diagnosing food intolerance is improvement on an elimination diet and relapse after administration of the original diet or its components (provocation diet).

Human medicine: double-blind, placebo-controlled food challenge (DBPCFC)

## Diagnosis – food allergy

1. Elimination diet 8–12 weeks
2. Provocation with old food → condition worsens
3. Improvement again with elimination diet

- Testing individual components in 14-day steps
- Then lifelong elimination diet / special food
- **Blood test not for diagnosing food allergy!, BUT for selecting the protein and carbohydrate for the elimination diet!**



[www.lustich.de](http://www.lustich.de)

## Elimination diet

- New protein + carbohydrate source
  - What is still new today?
  - Common allergens
    - Ruminants
    - Poultry / birds
    - Fish
  - 1 protein und 1 carbohydrate
    - BARF
    - Home-cooked/prepared
    - Commercial hypoallergenic
    - Hydrolyzed
  - Food contamination
    - Production, raw material
- Without preservatives
- Without flavorings, colorants
- Prior feed history
  - Never fed before
  - No antibodies
- CAVE! Simultaneous medications with flavorings (antibiotics!!)
- min. 2 months

## Guidelines for diet selection

- Must be avoided!
- No treats (only treats of the same protein origin)
- No flavored medications
- Critical selection of feed additives
- Problem: free-roaming animals
- Problem: coprophagia
- Problem: multi-cat / multi-dog households
- Problem: visitors, family

## When can success be expected with an elimination diet?

duration	percent
1-3 weeks	26%
4-6 weeks	33%
6-8 weeks	49%
9-10 weeks	6%



Rosser, J Am Vet Med Assoc 203:259, 1993

## Elimination diet: possible causes of problems

- No complete disappearance of symptoms
  - Secondary infections
  - Other allergens (environmental allergens, AD)
  - Storage mites!
  - Others diseases (Sarcoptes...)
  - Free-roaming animals
  - Food contaminated, molecule size, wrong diet
  - COMPLIANCE ?!



## Ultimate food allergy diagnosis

- Provocation diet = gold standard
- Original food
- Individual components (often unintentionally, e.g. via chew bones, treats)
- Mineral supplements (casein!)

## Canine atopic dermatitis (CAD)

- Pruritic skin disease with hereditary predisposition
- IgE antibodies against environmental allergens
- 10–15% of the dog population
- First described in cats in 1982

Reedy, JAAHA, 1982

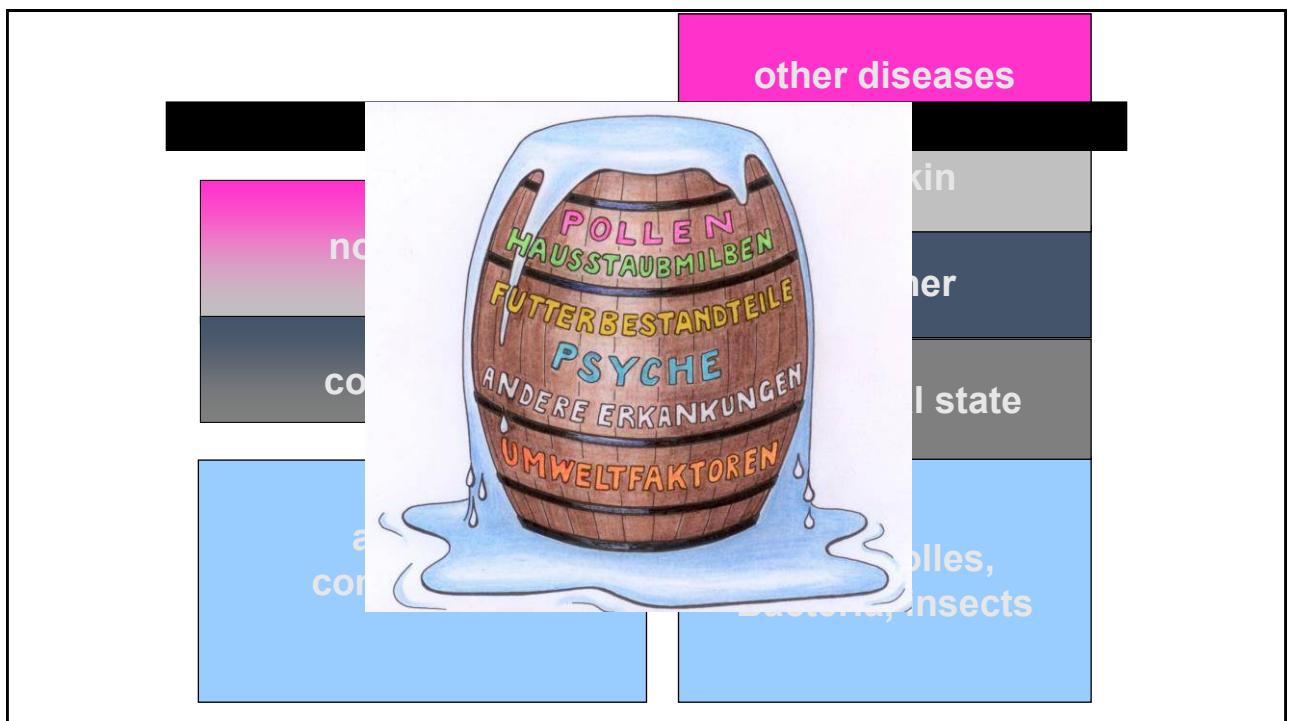
## Definition cAD

- Canine atopic dermatitis is a complex, inflammatory, pruritic skin disease in which genetic and environmental factors lead to sensitization to various environmental allergens. Upon exposure to these allergens, clinical symptoms occur.
- In 2023, the International Committee on Allergic Disease of Animals (ICADA) released an updated definition for canine atopic dermatitis (cAD): “cAD is a hereditary, typically pruritic, and predominantly T-cell-driven inflammatory skin disease involving interplay among skin barrier abnormalities, allergen sensitization, and microbial dysbiosis.”

Eisenschenk MC, Hensel P, Saridomichelakis MN, et al. Introduction to the ICADA 2023 canine atopic dermatitis pathogenesis review articles and updated definition. Vet Dermatol. 2024;35(1):3-4.

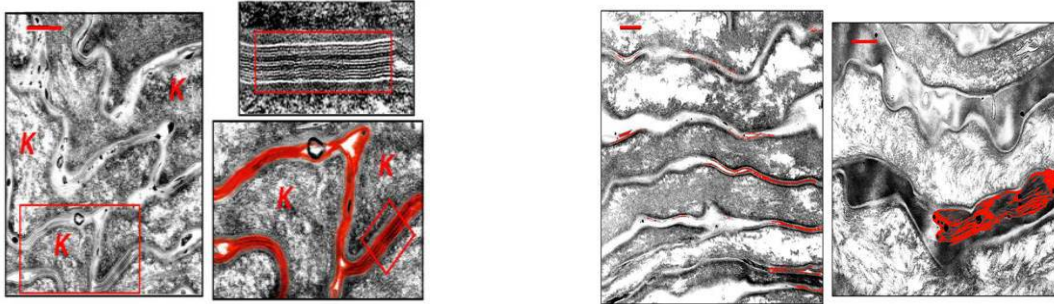
## ATOPY – etiology

- Genetic
- Non genetic:
  - Hygiene hypothesis
  - Environmental pollution
  - Vaccination
  - Infectious disease
  - Hormonal influence
  - Allergen concentration in the environment
  - Month of birth



## Barrier function

- Intercellular lipids: ceramides (30%, sphingosines and fatty acids), cholesterol (60%) and free fatty acids (10%)
- ➔ Dysfunction: allergens and microorganisms can penetrate

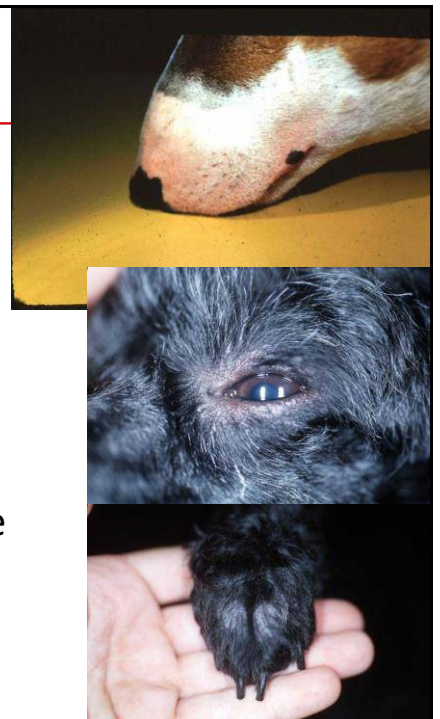


lamellar and continuous intercellular lipids  
(Inman, Vet Pathol 2001)

abnormal and discontinuous intercellular lamellae  
(Inman, Vet Pathol 2001)

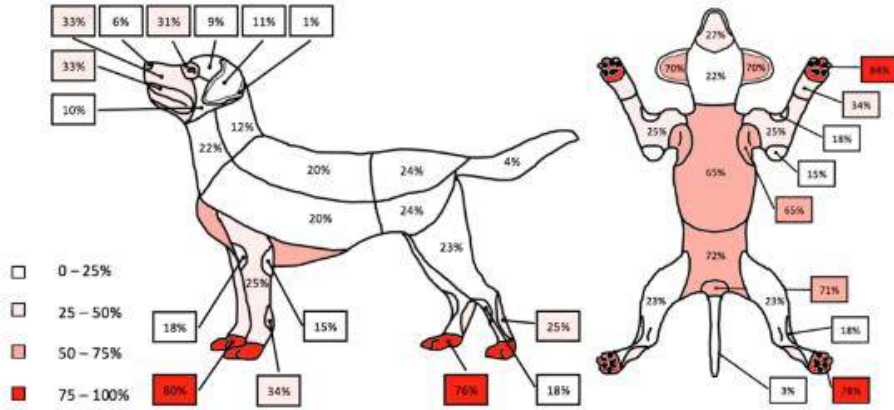
## Symptoms of CAD

- Pruritus (*sine materia*)
- Erythema
- Secondary lesions
- Otitis externa
- Conjunctivitis
- Rare sneezing
- Cat, horse: respiratory symptoms
- Paws
- Face
- Metatarsus, metacarpus
- Axilla, groin
- Abdomen
- Otitis externa, erythema of the auricle

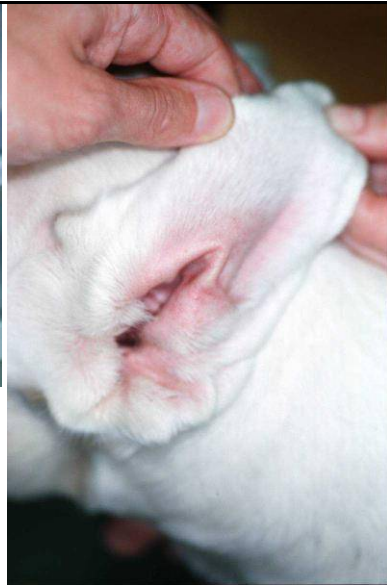


Lesion distribution in cases of canine atopic dermatitis in South Australia

Graham, Chan, Hill  
 Australian Veterinary Journal, 2019



Graham M, Chan WY, Hill P. Lesion distribution in cases of canine atopic dermatitis in South Australia. Aust Vet J. 2019;97(8):262-267.



## Favrot criteria (2010)

---

- Onset of disease <3 years of age
- Dogs usually live indoors
- Pruritus responds to glucocorticoids
- Chronic or recurrent (yeast) infection
- Initially pruritus sine materia (no skin lesions)
- Forepaws / forelimbs involved
- Ear pinna involved
- Ear margins NOT involved
- Dorsolumbar area NOT involved

Sensitivity 85%, specificity 79% if 5 criteria are met.

Favrot, Vet Dermatol 21:23-31, 2010

## Diagnosis CAD

---

- Exclusion of DDx (ectoparasites, infections, other diseases)
- Elimination diet
- Flea control
- Treatment of secondary infections
- Fulfillment of Favrot criteria
- Allergy testing
  - Intradermal test
  - Serology – Fc epsilon receptor test, PAX
  - Withdrawal periods, timing, age

## Withdrawal periods

- Oral prednisolone
- Methylprednisolone inj.
- Hydroxyzine
- Acepromazine
- Topical glucocorticoids
- JAK inhibitors, Cytopoint

IDT	blood
4 we	- 8 we
3 mo	- 3 mo
8 d	0
1d	0
2 we	- 4 we

## Intradermal skin test


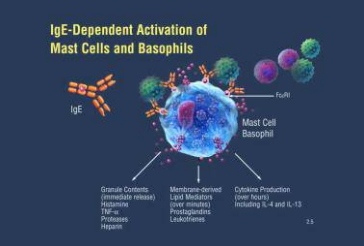
6020  
AN21

### Intradermal skin test (Dog)

Intradermal skin test (dog) (one vial with one allergen)

- Shaving
- Marking
- Inject 0.05 ml
- Reading



**IgE-Dependent Activation of Mast Cells and Basophils**

Group 1 Contents (immediate release): Histamine, Tryptase, Prostaglandin, Heparin

Membrane-Derived Lipid Mediators (slow release): Prostaglandins, Leukotrienes

Cytokine Production (over hours): Including IL-4 and IL-13

Other: IgE, Mast Cell, Basophil, Puffin

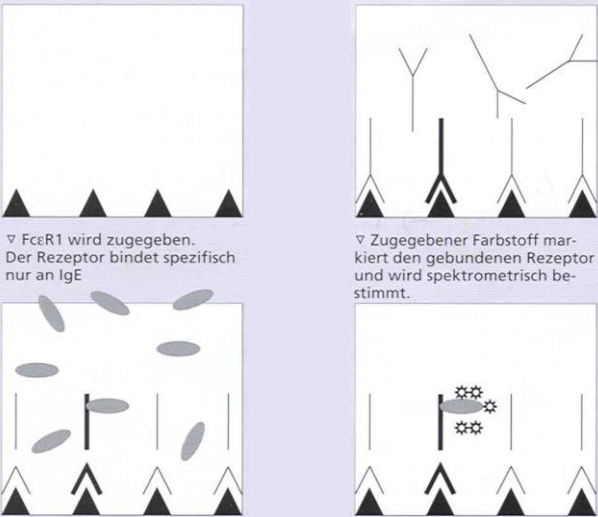
**Diagramm 1: Fcε-Rezeptor-Test® in der Allergiediagnostik**

▽ Allergene sind auf dem Trägermaterial gebunden

▽ Testserum wird zugegeben. Darin enthaltenes allergen-spezifisches IgE und auch IgG binden an das Allergen

▽ FcεR1 wird zugegeben. Der Rezeptor bindet spezifisch nur an IgE

▽ Zugegebener Farbstoff markiert den gebundenen Rezeptor und wird spektrometrisch bestimmt.



▲ Allergen
∩ IgE
∩ IgG
● Fcε-Rezeptor
☆ Farbstoff

**Submission form**

**Allergy**

Business hours: Mon - Fri: 8.00 - 19.00, Sat: 9.00 - 13.00

Customer-No. / Barcode

\_\_\_\_\_

**LABOKLIN**

LABOR FÜR KLINISCHE DIAGNOSTIK GMBH & CO. KG

PB 1810 DE-97668 Bad Kissingen  
Tel +49 971 72020 Fax +49 971 68546  
Email: info@laboklin.com

---

**7105 Screening Test Dog/Cat**

**7106 Seasonal Panel**


**7107 Perennial Panel**

(mites, pollen, moulds, flea saliva)

**Please automatically differentiate any positive reactions in the Screening Test.**  
(Prices for automatic differentiation see main tests, depending on positive group)

(grasses, weeds, tree pollen) (incl. CHO-Test and CCD blocking as needed)

(moulds, mites)



Submission form

Allergy

Business hours: Mon - Fri: 8.00 - 19.00, Sat: 9.00 - 13.00

Customer-No. / Barcode

LABOKLIN

LABOR FÜR KLINISCHE DIAGNOSTIK GMBH & CO. KG
PB 1810 DE-97668 Bad Kissingen
Tel +49 971 72020 Fax +49 971 68546
Email: info@laboklin.com

Screening Test Dog/Cat

7105 Screening Test

(mites, pollen, moulds, flea saliva)

Please automatically differentiate any positive reactions in the Screening Test (Prices for automatic differentiation see main tests, depending on positive group)

Main Tests Dog/Cat

7106 Seasonal Panel

(grasses, weeds, tree pollen) (incl. CHO-Test and CCD blocking as needed)

7107 Perennial Panel

(moulds, mites)



Submission form

Allergy

Business hours: Mon - Fri: 8.00 - 19.00, Sat: 9.00 - 13.00

Customer-No. / Barcode

LABOKLIN

LABOR FÜR KLINISCHE DIAGNOSTIK GMBH & CO. KG
PB 1810 DE-97668 Bad Kissingen
Tel +49 971 72020 Fax +49 971 68546
Email: info@laboklin.com

Dog/Cat

7140 Pruritus Profile - Small (dog)

(Screening Test, Sarcoptes Ab)

7141 Pruritus Profile - Medium (dog/cat)

(Screening Test, Sarcoptes Ab, Food Allergens Basic and Food Allergens Extended)

7143 Pruritus Profile - Large (dog)

(Seasonal and Perennial Panel, Food Allergens Basic and Food Allergens Extended, Sarcoptes Ab, flea saliva)

7136 Food Allergen Profile (dog/cat)

(Food Allergens Basic, Food Allergens Extended and Food Allergens Exotic)

7155 Nordic Allergy Profile (dog/cat)

(flea saliva, Malassezia, mites and moulds, as well as pollen from Nordic grasses, weeds and trees) (incl. CHO test and blocking)

Screening Test Dog/Cat

7105 Screening Test

(mites, pollen, moulds, flea saliva)

Please automatically differentiate any positive reactions in the Screening Test (Prices for automatic differentiation see main tests, depending on positive group)

Main Tests Dog/Cat

7106 Seasonal Panel

(grasses, weeds, tree pollen) (incl. CHO-Test and CCD blocking as needed)

7107 Perennial Panel

(moulds, mites)

7116 Feathers/Hair/Epithelia

(cat, dog, rabbit, guinea pig, parrot, feather mix)

7130 Insect Panel

(deerfly, gnat, mosquito, horse fly, stable fly, cockroach)

7124 Hymenoptera

(bee, wasp, hornet, paperwasp) (incl. CHO-Test and CCD blocking as needed)

7127 Mediterranean Panel

(grasses, weeds, tree pollen, moulds, mites) (incl. CHO-Test and CCD blocking as needed)

6103 Flea saliva (IgE)

7117 Malassezia (IgE)

588 Sarcoptes Ab (IgG) (dog)

5/0,5ml

## CCD (cross-reactive carbohydrate determinant) – cross-reactive carbohydrate side chains



- Known in human medicine for 3 decades
- Pollen – almost all positive
- Cross-reactions with plant carbohydrate chains – hence CCD
- Type-1 reaction – IgE
- In all in-vitro tests
- Cannot distinguish true positive from false positive (due to CCD reaction)
- → ASIT

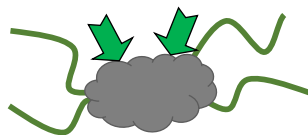
7106  
7107 Seasonal Panel

(grasses, weeds, tree pollen) (incl. CHO-Test and CCD blocking as needed)

## Animals can produce IgE reactions against proteins and carbohydrates

### ALLERGIC REACTION

Allergen-specific IgE (green arrows)

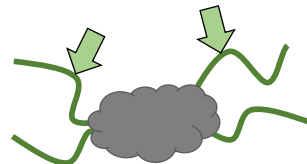


Each allergen consists of proteins.  
Each allergen-specific IgE molecule reacts to a protein = allergen.

CLINICAL RELEVANT

### CCD-REACTION

CCD-specific IgE (light green arrows)



CCD are common structures on plant glycoproteins.  
Each CCD-specific IgE will react with most plant allergens.

CLINICAL IRRELEVANT

# PAX

- PAX (Dog/Cat/Horse)**
- 2020 PAX complete (Environmental) (dog/cat/horse)**
- 2021 PAX complete (Food) (dog/cat/horse)**
- 2022 PAX complete (Environmental + Food) (dog/cat/horse)**

S/0,5ml  
S/0,5ml  
S/0,5ml

- Makroarray-IgE-Test
- 200 allergen extracts and molecular components
- Identification of cross-reactivities
- Fully automated process, higher degree of standardization
- CCD blocking with two blockers



## PAX Allergene: Komponenten & Extrakte

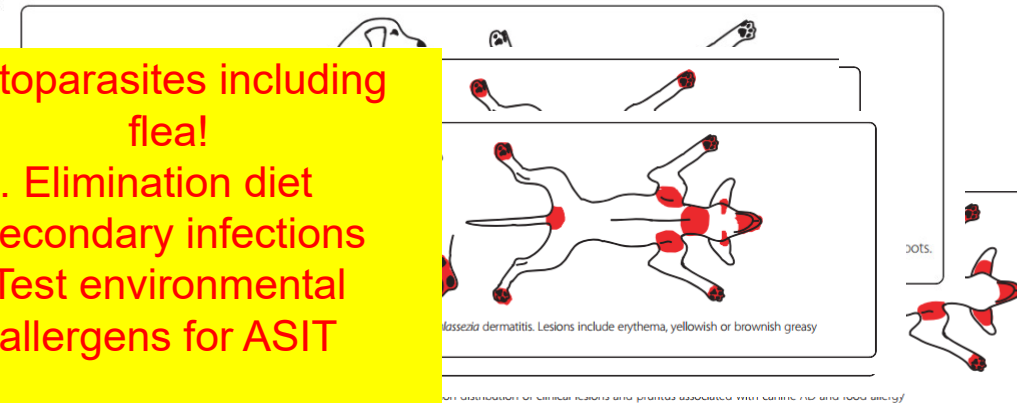
Gebirgsflüchler Name	Wissenschaftlicher Name	Extrakte & Komponenten	Gebirgsflüchler Name	Wissenschaftlicher Name	Extrakte & Komponenten	Gebirgsflüchler Name	Wissenschaftlicher Name	Extrakte & Komponenten			
Handschuhleder	Cynodon dactylon	Can d 1	Hand	Canis familiaris	Can f 1, Can f 2, Can f 3, Can f 4, Can f 5, Can f 6, Can f 7, Can f 8, Can f 9, Can f 10, Can f 11, Can f 12, Can f 13, Can f 14, Can f 15, Can f 16, Can f 17, Can f 18, Can f 19, Can f 20, Can f 21, Can f 22, Can f 23, Can f 24, Can f 25, Can f 26, Can f 27, Can f 28, Can f 29, Can f 30, Can f 31, Can f 32, Can f 33, Can f 34, Can f 35, Can f 36, Can f 37, Can f 38, Can f 39, Can f 40, Can f 41, Can f 42, Can f 43, Can f 44, Can f 45, Can f 46, Can f 47, Can f 48, Can f 49, Can f 50, Can f 51, Can f 52, Can f 53, Can f 54, Can f 55, Can f 56, Can f 57, Can f 58, Can f 59, Can f 60, Can f 61, Can f 62, Can f 63, Can f 64, Can f 65, Can f 66, Can f 67, Can f 68, Can f 69, Can f 70, Can f 71, Can f 72, Can f 73, Can f 74, Can f 75, Can f 76, Can f 77, Can f 78, Can f 79, Can f 80, Can f 81, Can f 82, Can f 83, Can f 84, Can f 85, Can f 86, Can f 87, Can f 88, Can f 89, Can f 90, Can f 91, Can f 92, Can f 93, Can f 94, Can f 95, Can f 96, Can f 97, Can f 98, Can f 99, Can f 100	Hand	Canis familiaris	Can f 1, Can f 2, Can f 3, Can f 4, Can f 5, Can f 6, Can f 7, Can f 8, Can f 9, Can f 10, Can f 11, Can f 12, Can f 13, Can f 14, Can f 15, Can f 16, Can f 17, Can f 18, Can f 19, Can f 20, Can f 21, Can f 22, Can f 23, Can f 24, Can f 25, Can f 26, Can f 27, Can f 28, Can f 29, Can f 30, Can f 31, Can f 32, Can f 33, Can f 34, Can f 35, Can f 36, Can f 37, Can f 38, Can f 39, Can f 40, Can f 41, Can f 42, Can f 43, Can f 44, Can f 45, Can f 46, Can f 47, Can f 48, Can f 49, Can f 50, Can f 51, Can f 52, Can f 53, Can f 54, Can f 55, Can f 56, Can f 57, Can f 58, Can f 59, Can f 60, Can f 61, Can f 62, Can f 63, Can f 64, Can f 65, Can f 66, Can f 67, Can f 68, Can f 69, Can f 70, Can f 71, Can f 72, Can f 73, Can f 74, Can f 75, Can f 76, Can f 77, Can f 78, Can f 79, Can f 80, Can f 81, Can f 82, Can f 83, Can f 84, Can f 85, Can f 86, Can f 87, Can f 88, Can f 89, Can f 90, Can f 91, Can f 92, Can f 93, Can f 94, Can f 95, Can f 96, Can f 97, Can f 98, Can f 99, Can f 100	Hand	Canis familiaris	Can f 1, Can f 2, Can f 3, Can f 4, Can f 5, Can f 6, Can f 7, Can f 8, Can f 9, Can f 10, Can f 11, Can f 12, Can f 13, Can f 14, Can f 15, Can f 16, Can f 17, Can f 18, Can f 19, Can f 20, Can f 21, Can f 22, Can f 23, Can f 24, Can f 25, Can f 26, Can f 27, Can f 28, Can f 29, Can f 30, Can f 31, Can f 32, Can f 33, Can f 34, Can f 35, Can f 36, Can f 37, Can f 38, Can f 39, Can f 40, Can f 41, Can f 42, Can f 43, Can f 44, Can f 45, Can f 46, Can f 47, Can f 48, Can f 49, Can f 50, Can f 51, Can f 52, Can f 53, Can f 54, Can f 55, Can f 56, Can f 57, Can f 58, Can f 59, Can f 60, Can f 61, Can f 62, Can f 63, Can f 64, Can f 65, Can f 66, Can f 67, Can f 68, Can f 69, Can f 70, Can f 71, Can f 72, Can f 73, Can f 74, Can f 75, Can f 76, Can f 77, Can f 78, Can f 79, Can f 80, Can f 81, Can f 82, Can f 83, Can f 84, Can f 85, Can f 86, Can f 87, Can f 88, Can f 89, Can f 90, Can f 91, Can f 92, Can f 93, Can f 94, Can f 95, Can f 96, Can f 97, Can f 98, Can f 99, Can f 100

Gebirgsflüchler Name	Wissenschaftlicher Name	Extrakte & Komponenten	Gebirgsflüchler Name	Wissenschaftlicher Name	Extrakte & Komponenten	Gebirgsflüchler Name	Wissenschaftlicher Name	Extrakte & Komponenten			
Soja	Glycine max	Gly m 1, Gly m 2, Gly m 3, Gly m 4, Gly m 5, Gly m 6, Gly m 8	Rind	Bos taurus	Bos t 1, Bos t 2, Bos t 3, Bos t 4, Bos t 5, Bos t 6, Bos t 7, Bos t 8, Bos t 9, Bos t 10, Bos t 11, Bos t 12, Bos t 13, Bos t 14, Bos t 15, Bos t 16, Bos t 17, Bos t 18, Bos t 19, Bos t 20, Bos t 21, Bos t 22, Bos t 23, Bos t 24, Bos t 25, Bos t 26, Bos t 27, Bos t 28, Bos t 29, Bos t 30, Bos t 31, Bos t 32, Bos t 33, Bos t 34, Bos t 35, Bos t 36, Bos t 37, Bos t 38, Bos t 39, Bos t 40, Bos t 41, Bos t 42, Bos t 43, Bos t 44, Bos t 45, Bos t 46, Bos t 47, Bos t 48, Bos t 49, Bos t 50, Bos t 51, Bos t 52, Bos t 53, Bos t 54, Bos t 55, Bos t 56, Bos t 57, Bos t 58, Bos t 59, Bos t 60, Bos t 61, Bos t 62, Bos t 63, Bos t 64, Bos t 65, Bos t 66, Bos t 67, Bos t 68, Bos t 69, Bos t 70, Bos t 71, Bos t 72, Bos t 73, Bos t 74, Bos t 75, Bos t 76, Bos t 77, Bos t 78, Bos t 79, Bos t 80, Bos t 81, Bos t 82, Bos t 83, Bos t 84, Bos t 85, Bos t 86, Bos t 87, Bos t 88, Bos t 89, Bos t 90, Bos t 91, Bos t 92, Bos t 93, Bos t 94, Bos t 95, Bos t 96, Bos t 97, Bos t 98, Bos t 99, Bos t 100	Pferd	Equus caballus	Equ c 1, Equ c 2, Equ c 3, Equ c 4, Equ c 5, Equ c 6, Equ c 7, Equ c 8, Equ c 9, Equ c 10, Equ c 11, Equ c 12, Equ c 13, Equ c 14, Equ c 15, Equ c 16, Equ c 17, Equ c 18, Equ c 19, Equ c 20, Equ c 21, Equ c 22, Equ c 23, Equ c 24, Equ c 25, Equ c 26, Equ c 27, Equ c 28, Equ c 29, Equ c 30, Equ c 31, Equ c 32, Equ c 33, Equ c 34, Equ c 35, Equ c 36, Equ c 37, Equ c 38, Equ c 39, Equ c 40, Equ c 41, Equ c 42, Equ c 43, Equ c 44, Equ c 45, Equ c 46, Equ c 47, Equ c 48, Equ c 49, Equ c 50, Equ c 51, Equ c 52, Equ c 53, Equ c 54, Equ c 55, Equ c 56, Equ c 57, Equ c 58, Equ c 59, Equ c 60, Equ c 61, Equ c 62, Equ c 63, Equ c 64, Equ c 65, Equ c 66, Equ c 67, Equ c 68, Equ c 69, Equ c 70, Equ c 71, Equ c 72, Equ c 73, Equ c 74, Equ c 75, Equ c 76, Equ c 77, Equ c 78, Equ c 79, Equ c 80, Equ c 81, Equ c 82, Equ c 83, Equ c 84, Equ c 85, Equ c 86, Equ c 87, Equ c 88, Equ c 89, Equ c 90, Equ c 91, Equ c 92, Equ c 93, Equ c 94, Equ c 95, Equ c 96, Equ c 97, Equ c 98, Equ c 99, Equ c 100	Lamm	Ovis aries	Ovis a 1, Ovis a 2, Ovis a 3, Ovis a 4, Ovis a 5, Ovis a 6, Ovis a 7, Ovis a 8, Ovis a 9, Ovis a 10, Ovis a 11, Ovis a 12, Ovis a 13, Ovis a 14, Ovis a 15, Ovis a 16, Ovis a 17, Ovis a 18, Ovis a 19, Ovis a 20, Ovis a 21, Ovis a 22, Ovis a 23, Ovis a 24, Ovis a 25, Ovis a 26, Ovis a 27, Ovis a 28, Ovis a 29, Ovis a 30, Ovis a 31, Ovis a 32, Ovis a 33, Ovis a 34, Ovis a 35, Ovis a 36, Ovis a 37, Ovis a 38, Ovis a 39, Ovis a 40, Ovis a 41, Ovis a 42, Ovis a 43, Ovis a 44, Ovis a 45, Ovis a 46, Ovis a 47, Ovis a 48, Ovis a 49, Ovis a 50, Ovis a 51, Ovis a 52, Ovis a 53, Ovis a 54, Ovis a 55, Ovis a 56, Ovis a 57, Ovis a 58, Ovis a 59, Ovis a 60, Ovis a 61, Ovis a 62, Ovis a 63, Ovis a 64, Ovis a 65, Ovis a 66, Ovis a 67, Ovis a 68, Ovis a 69, Ovis a 70, Ovis a 71, Ovis a 72, Ovis a 73, Ovis a 74, Ovis a 75, Ovis a 76, Ovis a 77, Ovis a 78, Ovis a 79, Ovis a 80, Ovis a 81, Ovis a 82, Ovis a 83, Ovis a 84, Ovis a 85, Ovis a 86, Ovis a 87, Ovis a 88, Ovis a 89, Ovis a 90, Ovis a 91, Ovis a 92, Ovis a 93, Ovis a 94, Ovis a 95, Ovis a 96, Ovis a 97, Ovis a 98, Ovis a 99, Ovis a 100

## Canine atopic dermatitis: detailed guidelines for diagnosis and allergen identification



1. Ectoparasites including flea!
2. Elimination diet
3. Secondary infections
4. Test environmental allergens for ASIT



## Allergy therapy in general

### 1. Allergen avoidance!

— Food allergy, flea allergy

### 2. Secondary infections

• (Antibiotics (e.g. cephalosporins)), Topical (e.g. chlorhexidine)

### 3. Symptomatic

• Corticosteroids (p.o.!), Cyclosporine, JAK inhibitor, Antihistamines, Lokivetmab

### 4. Palliative

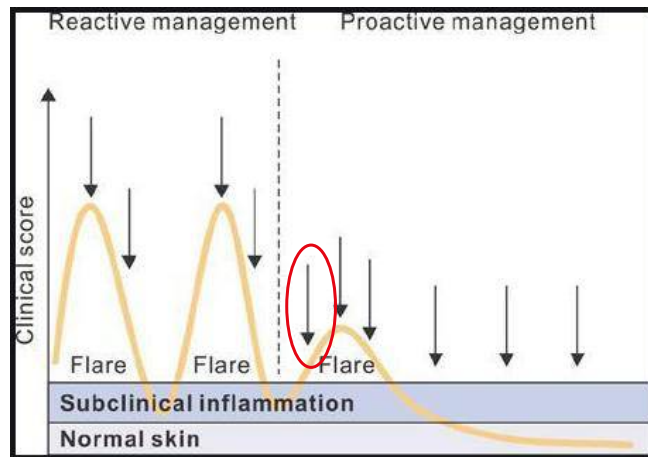
• Essential fatty acids, skin barrier

• Cats: collars, socks, neck wraps, soft paws

### 5. Allergen-specific immunotherapy (ASIT / hyposensitization)



# Proactive therapy



Pang, Kinderspital Zürich

Olivy et al. BMC Veterinary Research (2015) 11:210  
DOI 10.1186/s12917-015-0514-6

Endorsed by



WAVD cannot be held responsible for errors or any consequences arising from the use of information contained in this article. Readers need to bear this in mind and be aware of the prescribing laws pertaining to their own countries



CORRESPONDENCE

Open Access

Treatment of canine atopic dermatitis: 2015 updated guidelines from the International

Co

(IC

Thierry

## Acute CA

○ Identif

○ Elimina

○ Shamp

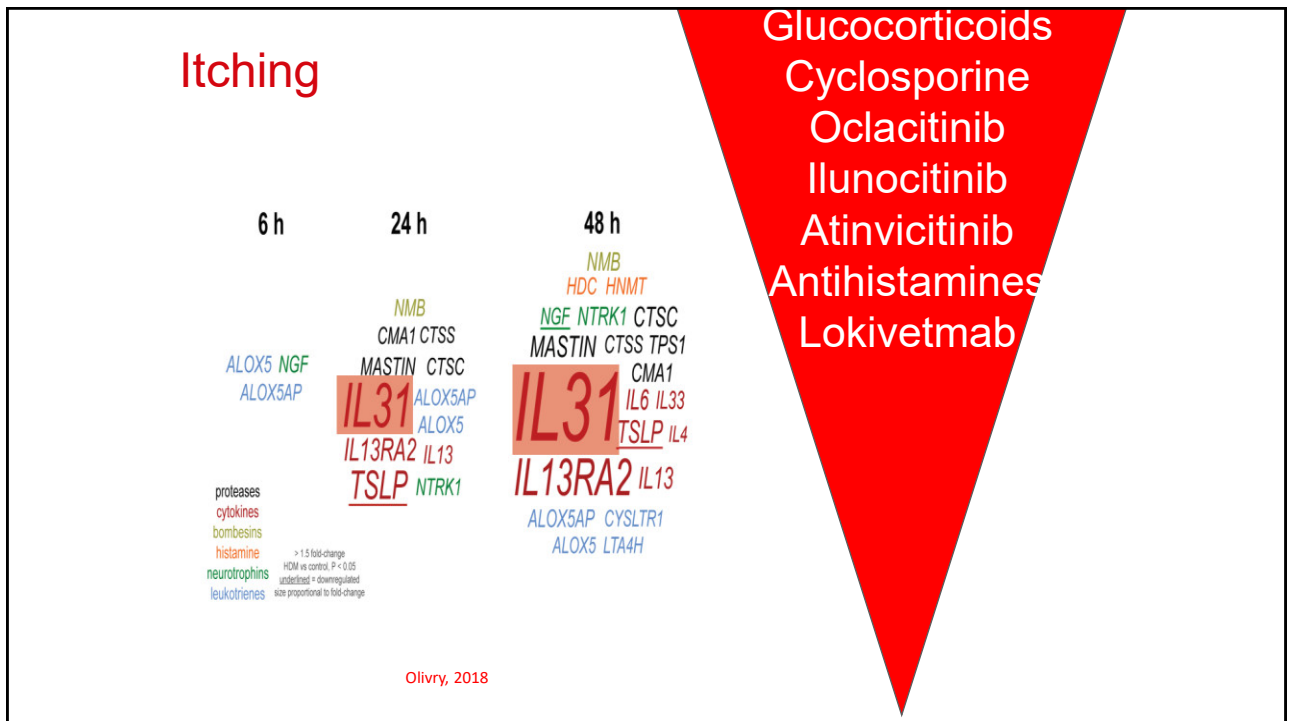
○ Pruritus control / lesions (corticosteroids, oclacitinib)

Allergen-specific immunotherapy and proactive intermittent topical glucocorticoid applications are the only interventions likely to prevent or delay the recurrence of flares of AD.

○ Corticosteroids, CSA, oclacitinib

○ ASIT, proactive topical corticosteroids, (lokivetmab)

tors  
mpoo,



## Allergen-specific immunotherapy (ASIT)

- Administration of gradually increasing amounts of allergen extract to an allergic subject in order to improve symptoms caused by exposure to the triggering allergens. Allergens are administered in increasing doses up to the maintenance dose.

WHO Definition, Bousquet et al. , 1998

Untersuchungsauftrag  
Allergie  
Laborzeiten: Mo. - Fr.: 8:00 - 19:00 Uhr, Sa.: 9:00 - 13:00 Uhr

Kundennummer / Barcode

**LABOKLIN**  
LABOR FÜR KLINISCHE DIAGNOSTIK GMBH & CO. KG  
Postfach 1810 - 57068 Bad Kissinger  
Telefon 0971/72020 - Telefax 0971/68546  
E-Mail: info@laboklin.de

### Allergen - Specific Immunotherapy (ASIT, Hyposensitization) Dog/Cat/Horse

**Please send a veterinary prescription together with your order. The prescription is mandatory for us to be able to deliver your order!**

**6111 Starter Set ASIT (dog/cat/horse) (incl. insects)**  
Sufficient for 10 months (+ shipping fee)

**6113 Refill ASIT (dog/cat/horse) (incl. insects)**  
Sufficient for 10 months (+ shipping fee)

**If you order a double set, we calculate double the price of a normal single set.**

**We can also prepare an allergen-specific immunotherapy based on the result of your intradermal test (for most countries) or an allergy test result.**

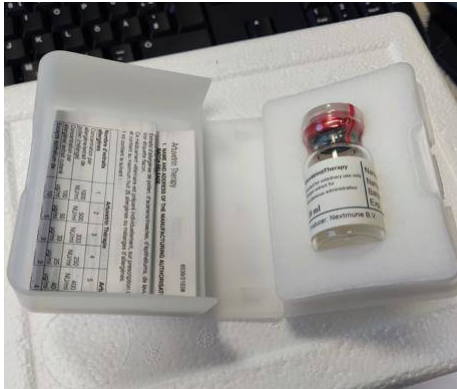
**Please send a prescription with your order. Delivery time approx. 3 weeks.**

**Please feel free to call us if you have any questions.**

## ASIT – history

- First mention in allergic rhinitis in humans in 1880
- 1900 and 1903 “immunizing injections”
- 1911 first report of successful immunotherapy with grass pollen in hay fever
- First reports in dogs with “seasonal hay fever” in 1941

Blackley, Hay Fever, its causes, treatment, and effective prevention, 1880  
Curtis, 1900; Dunbar, 1903  
Noon; Lancet 1911; Freeman, Lancet, 1914



Starter set					
Week number	Day number	Weeks later	Volume	Date of injection	Notes
1	1		0.2 ml		
3	15	2	0.4 ml		
5	29	2	0.6 ml		
7	43	2	0.8 ml		
10	64	3	1.0 ml		
13	85	3	1.0 ml		
17	113	4	1.0 ml		
21	141	4	1.0 ml		
25	169	4	1.0 ml		
29	197	4	1.0 ml		
33	225	4	1.0 ml		

Order new ASIT!

Refill set					
Week number	Day number	Weeks later	Volume	Date of injection	Notes
1	1		1.0 ml		
5	29	4	1.0 ml		
9	57	4	1.0 ml		
13	85	4	1.0 ml		
17	113	4	1.0 ml		
21	141	4	1.0 ml		
25	169	4	1.0 ml		
29	197	4	1.0 ml		
33	225	4	1.0 ml		
37	253	4	1.0 ml		

Order new ASIT!

## Other noteworthy points

- Start of ASIT
- Minimum 1 year – lifelong if successful
- Response often after 1–2 months, others after 9–12 months
- Therapy failures – only after stopping does one notice the partial success...
- Corticosteroid-sparing effect

## Medications during ASIT

---

- Treatment of secondary infections
- Antihistamines
- Corticosteroids
- CsA
- JAK inhibitors, lokivetmab
  
- Caution: symptomatic therapy during induction phase masks symptoms that would require adaptation

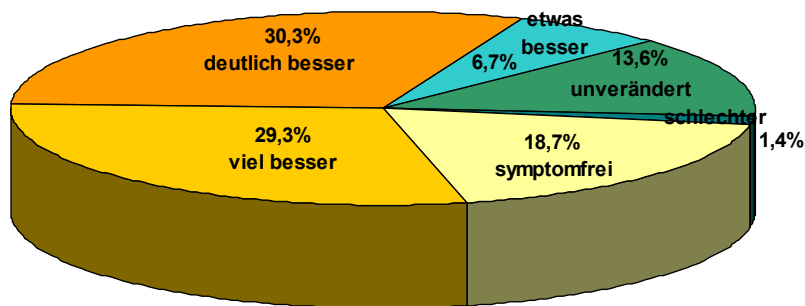
## Increased pruritus

---

- In 20% of cases
- Volume too large
- Interval too long
- New batch
- More allergens in the environment (flowering season, ...)
- Simultaneous routine vaccination
- Other allergens responsible (flea, food)
- Other pruritic disease (Sarcoptes!!!)

Dog: treatment success: 78.3%

Therapieerfolg der allergen-spezifischen Immuntherapie (ASIT) bei atopischen Hunden



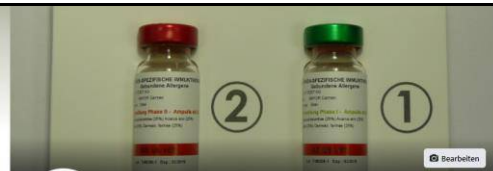
n=646

## Reasons for failure

- Incorrect diagnosis
- Additional concurrent disease (FH, Sarcoptes, ...)
- Secondary infections not adequately treated
- Not all allergens included in ASIT (>1 set)
- Administration not optimal
- Lack of plan adaptation – ASIT IS NOT A COOKBOOK THERAPY!

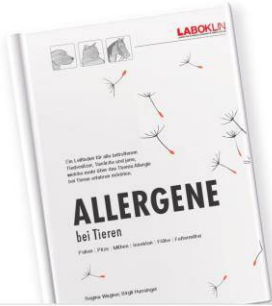
## Possible adaptations

1. Volume (protein amount) more or less
2. Interval lengthened or shortened
3. Second set with additional allergens



A screenshot of the Facebook page for 'LABODERM Laboderm'. The page header shows the name 'LABODERM Laboderm' and the handle '@vetdermLaboderm - Tierarzt'. Below the header, there are navigation tabs for 'Startseite', 'Services', 'Bewertungen', and 'Mehr'. A search bar and a 'Hervorheben' button are also visible. The main content area features a post from 'Laboderm' dated April 23, 2020. The post text reads: 'Ziel unserer neuen FB Seite "Laboderm" ist es, Sie über relevante veterinärmedizinische, dermatologische Dinge bei Hauterlen zu informieren. Wir werden viele Bereiche abdecken, egal ob Allergie, Ektoparasiten, erbliche oder bakterielle Hauterkrankungen usw. Wir werden Ihnen Fälle vorstellen und Sie mit wissenschaftlichen Themen in dem Bereich versorgen. Folgen Sie uns, wir freuen uns über Likes und Mitglieder. The aim of our new FB page "Laboderm" is to bring knowledge about vete... Mehr ansehen'. The post includes a photo of a dog's skin and a video thumbnail. On the left side of the page, there are several promotional cards: 'Finde Gruppen, denen du beitreten kannst', 'Shop erstellen', and 'Werbeanzeige erstellen'. The 'Shop erstellen' card mentions 'Unternehmen wie dieses verkaufen ihre Produkte über Facebook Shops' and 'Seiten mit ebem Shop verzeichnen bis zu 55 % mehr Seiteaufrufe'. The 'Werbeanzeige erstellen' card says 'Wie möchtest du dein Unternehmenswachstum fördern?'. At the bottom of the page, there are buttons for 'Beitrag bewerten' and 'Mehr Nachrichten'.

## Allergene bei Tieren



Das Buch „Allergene bei Tieren“ ist ein Leitfaden für alle Tierbesitzer, Tierärzte und auch Menschen mit Allergien.

Dr. med. vet. Regina Wagner (Fachtierärztin für Dermatologie) und Dr. med. vet. Birgit Hunsinger erklären:

- Symptome von Allergien bei Hund, Katze und Pferd, diagnostische und therapeutische Möglichkeiten
- Wissenswertes über Pollen, Hausstaub- und Vorratsmilben, Schimmelpilze, Insekten, Epithelien und Futtermittel mit Tipps für deren Vermeidung
- Rezepte und Links

Blick ins Buch



Bestellen Sie Ihr Exemplar direkt bei uns. Das Bestellformular finden Sie auch auf unserer Internetseite unter <http://www.laboklin.com/pages/html/de/service/allerge.htm>

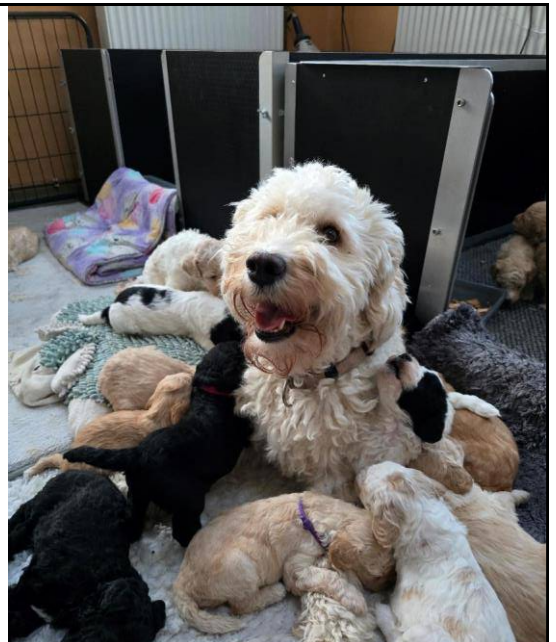
**Bestellformular**  
per Fax +49 (0)971 / 6 85 46  
per E-Mail: [info@laboklin.com](mailto:info@laboklin.com)

Hiermit bestelle ich  
 Stück **Allergene bei Tieren**  
à 29,50 EUR zzgl. Versandkosten 4,50 EUR  
Preise inkl. MwSt.

Rechnungsempfänger /  
Versandadresse (evtl. Kunden-Nr.)

Datum / Stempel / Unterschrift

[www.laboklin.com](http://www.laboklin.com)  
LABOKLIN GmbH & Co. KG  
Steubenstr. 4 • D-97588 Bad Kissingen  
Tel. 0971 / 7202-0 • E-Mail: [info@laboklin.com](mailto:info@laboklin.com)



[www.austrian-barbet.com](http://www.austrian-barbet.com)