



# \*Allergies and Hypersensitivities

Implications beyond the mucous membranes

Guido Masé RH(AHG) 2012

<http://www.vtherbcenter.org>



The Hygiene Hypothesis: too much of a good thing?



### Farm kids and asthma: inverse correlation

Von Mutius et al. "Living on a farm: impact on asthma induction and clinical course." Immunol Allergy Clin North Am. 2008

### WHY?

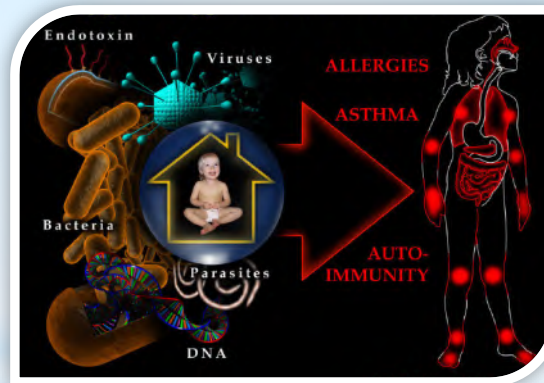
- Sleeping with animals?
  - (Remes et al. 2003)
- Drinking raw milk?
  - (Loss et al. 2011)
- Haying the fields?
  - (Perkin et al. 2006)
- ALL OF THE ABOVE!



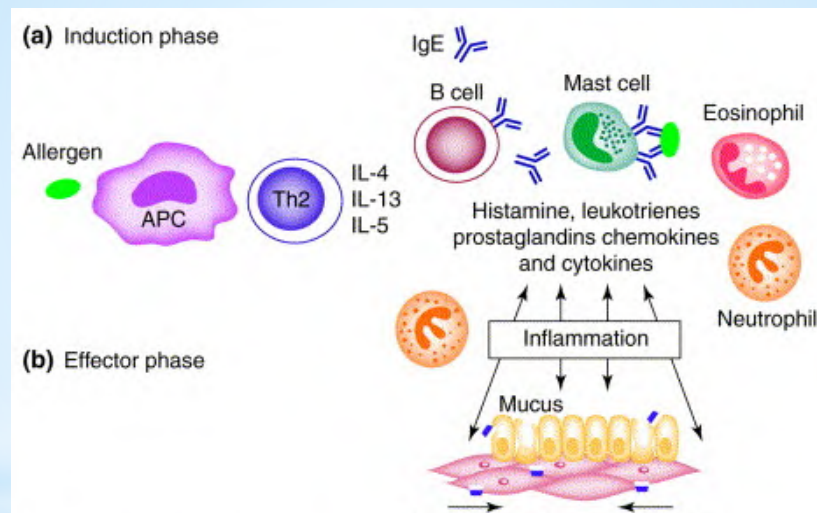
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Von Mutius et al. "Living on a farm: impact on asthma induction and clinical course." Immunol Allergy Clin North Am. 2008

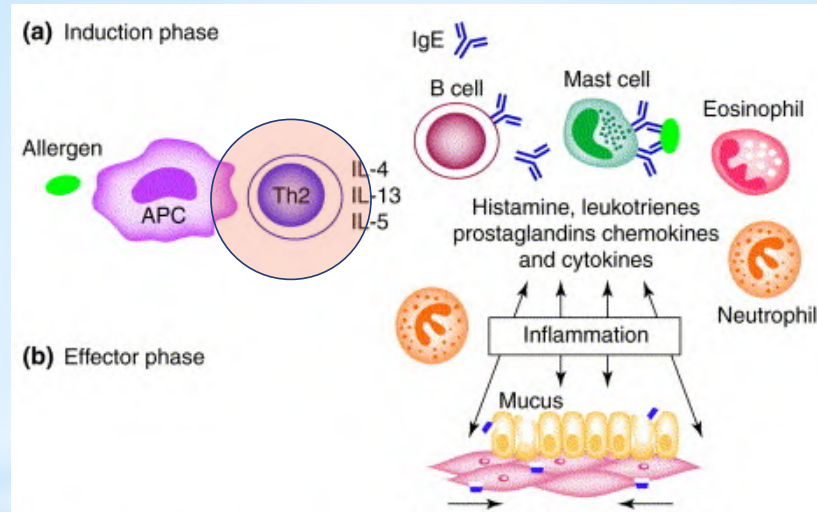
Folkerts, Walzl and Openshaw (2000). "Do common childhood infections 'teach' the immune system not to be allergic?" Immunology Today 21 (3)



The Hygiene Hypothesis: too much of a good thing?



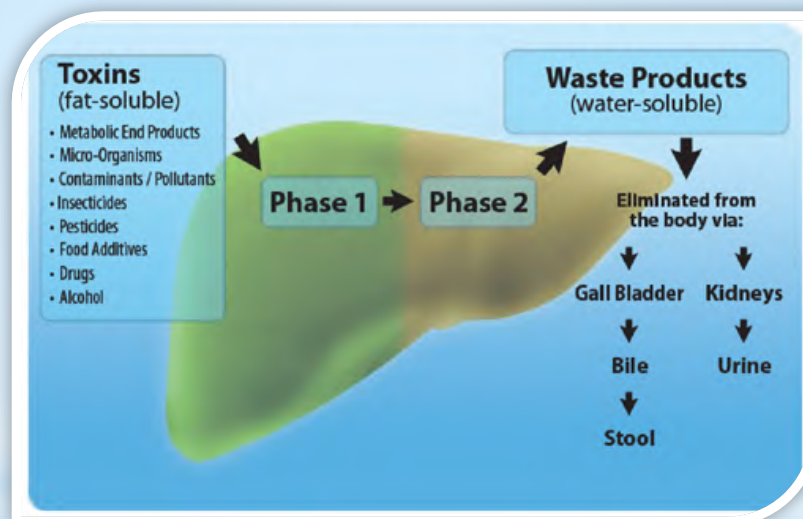
The Immune system in hypersensitivity



### The Immune system in hypersensitivity:

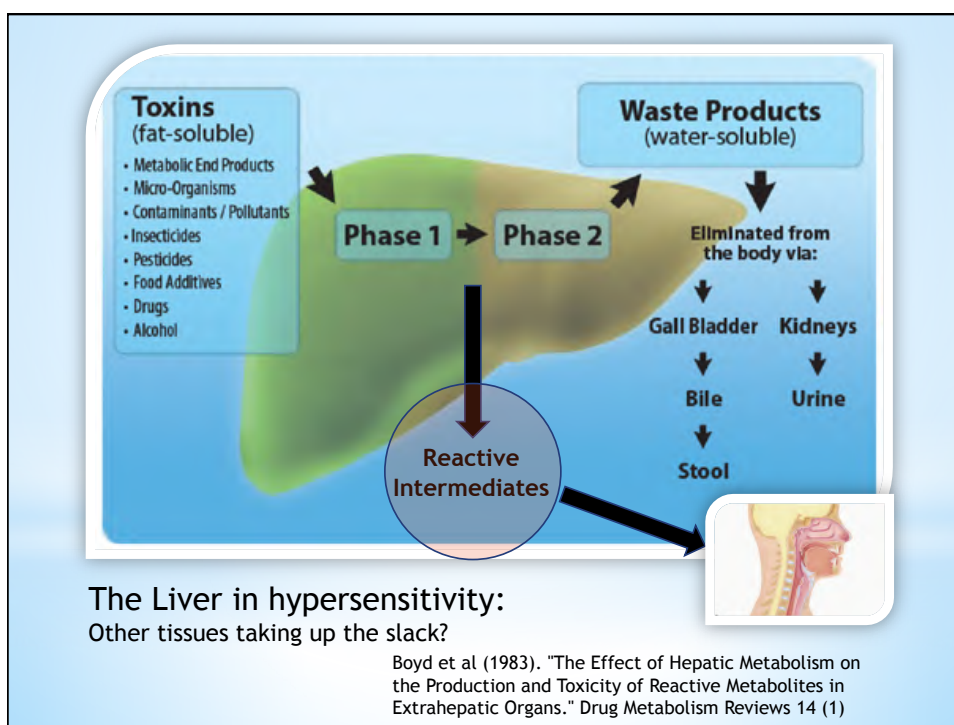
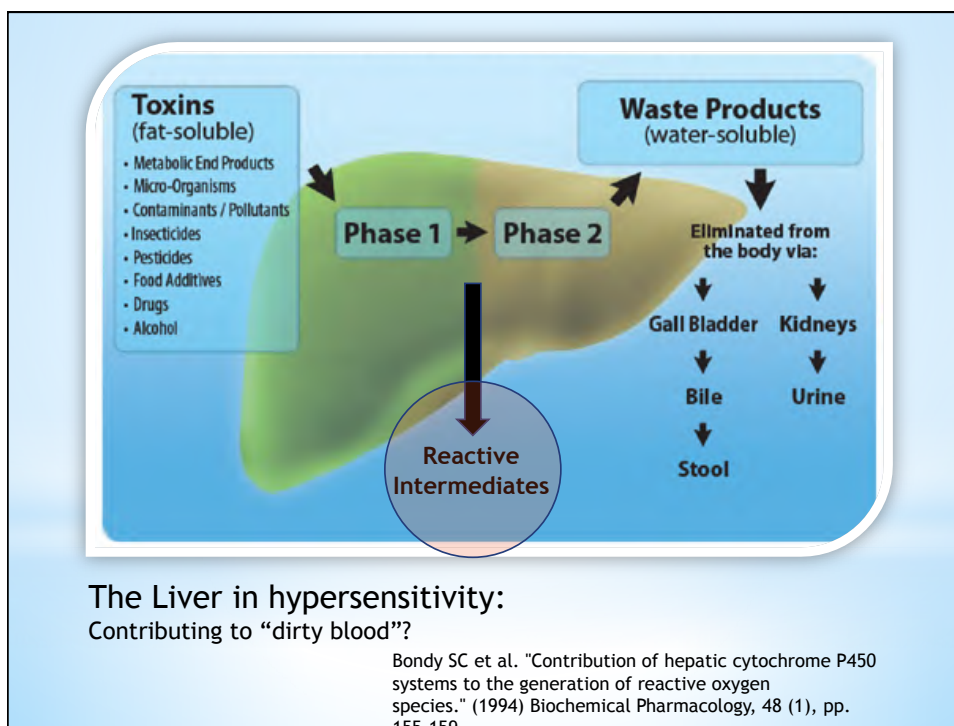
Crucial role of helper-type-2 (Th2) cells: pro-inflammatory IgE in mucosa  
 ("atopic" individuals may be more Th2 - dominant)

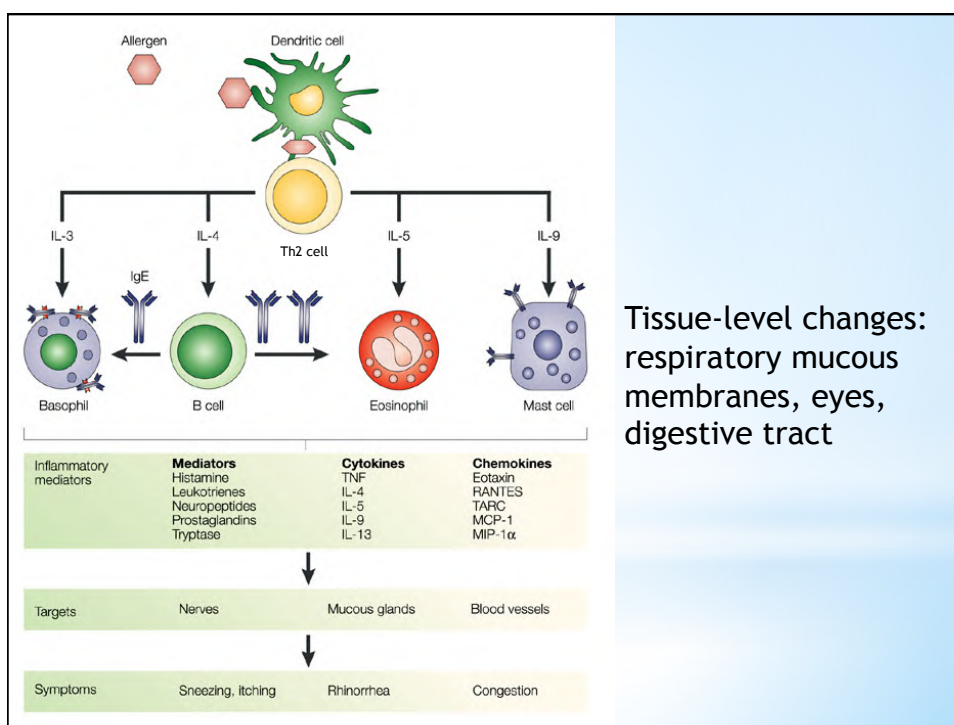
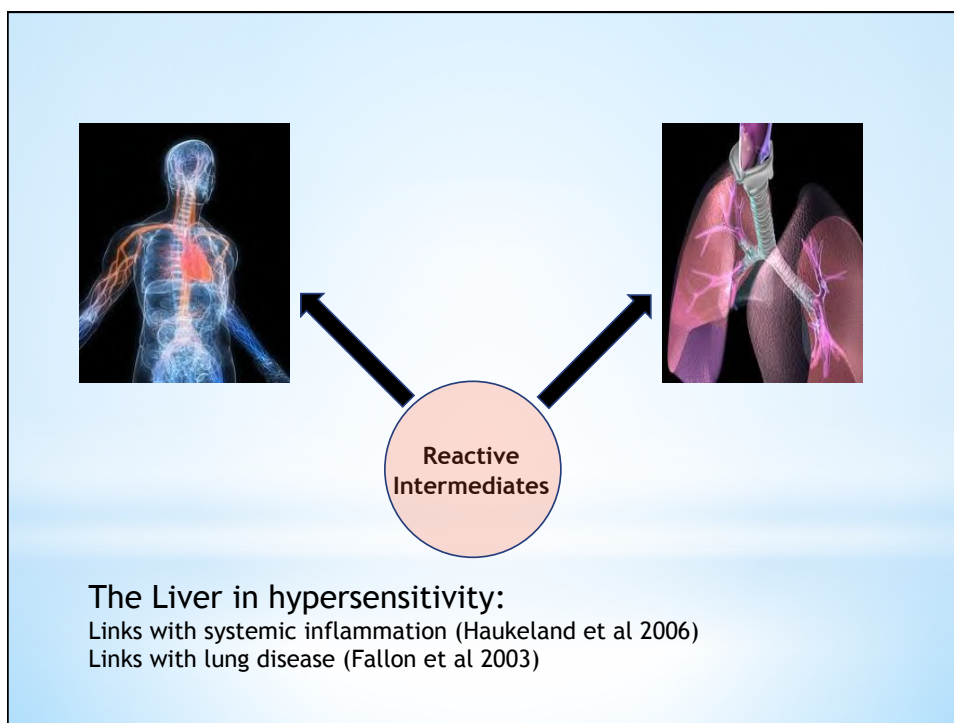
(Romagnani 1997)



### The Liver in hypersensitivity

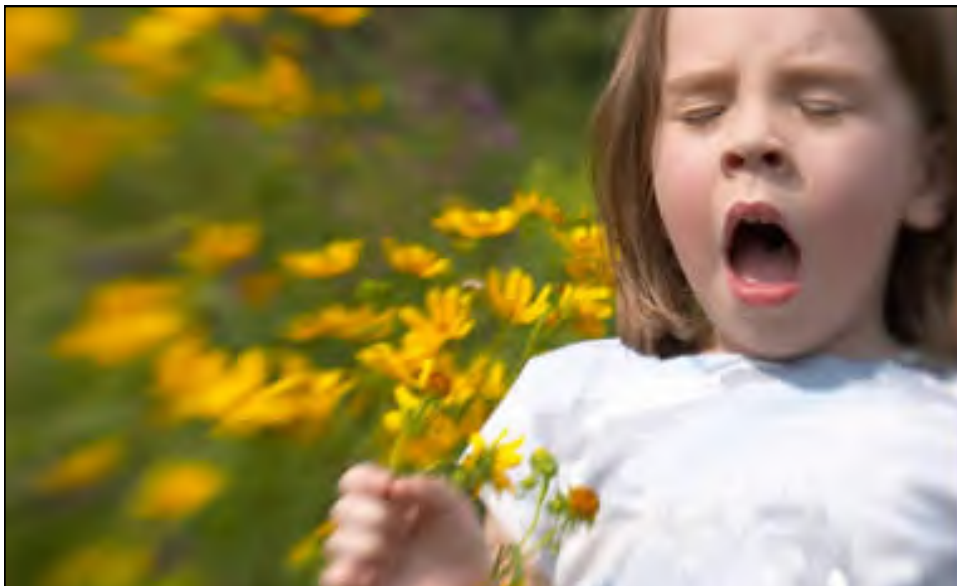






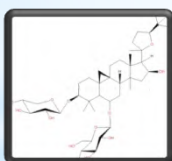
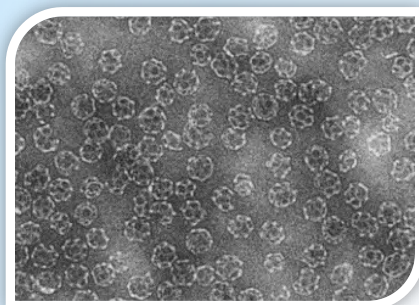


Congestion, red eyes, itchy eyes, redness around nose and eyes, periorbital headache, clear mucous discharge. Can involve laryngeal irritation (post-nasal drip, esp. on rising in am), sneezing and coughing. Rarely pulmonary involvement, unless an asthmatic profile is also present.

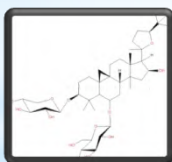


HAYFEVER: 17.9 million US adults (7.8%) and 7.1 million children (9.5%)  
RESPIRATORY ALLERGY: 8.6 million US children (11.5%)

\* “reported” numbers over last 12 months, [CDC.GOV](https://www.cdc.gov)



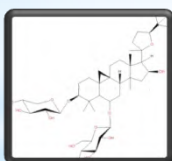
Cox JC et al (1998). "ISCOMs and other saponin-based adjuvants." *Adv Drug Deliv Rev* 32 (3).



Astragaloside (*Astragalus membranaceus*):  
Triterpene saponin

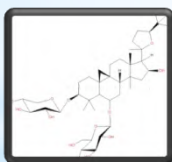
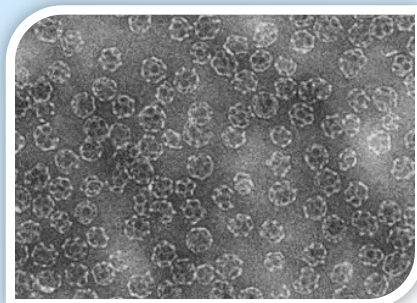
Song X., Hu S. "Adjuvant activities of saponins from traditional Chinese medicinal herbs." (2009) *Vaccine*, 27 (36), pp. 4883-4890.





Astragaloside (*Astragalus membranaceus*):  
Triterpene saponin

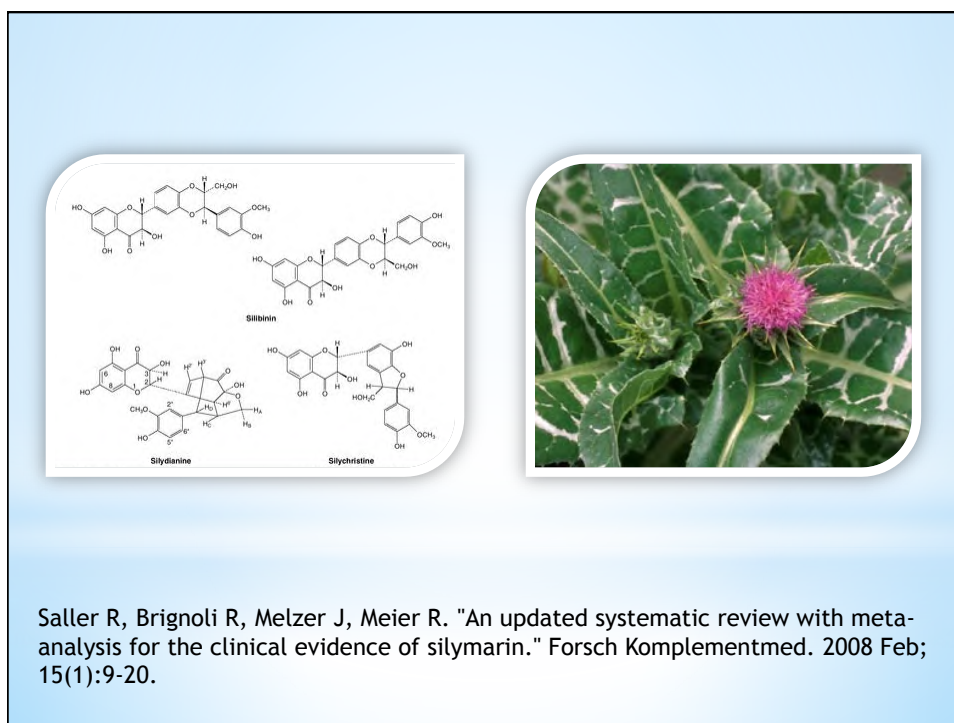
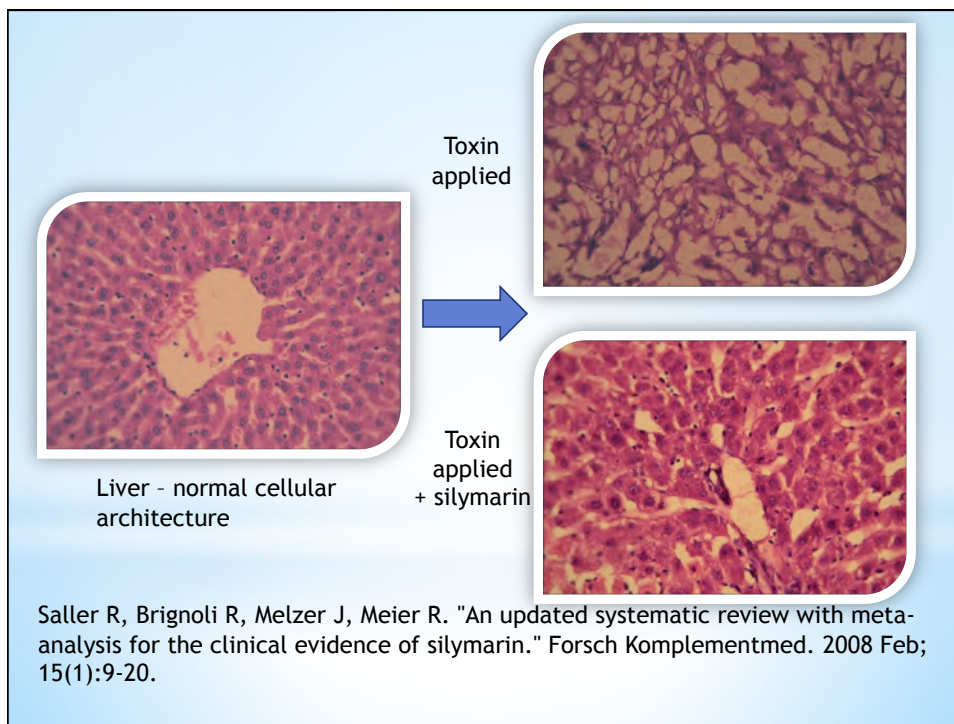
Shen H.-H., Wang K., Li W., Ying Y.-H., Gao G.-X., Li X.-B., Huang H.-Q. "Astragalus membranaceus prevents airway hyperreactivity in mice related to Th2 response inhibition." (2008) Journal of Ethnopharmacology, 116 (2), pp. 363-369.

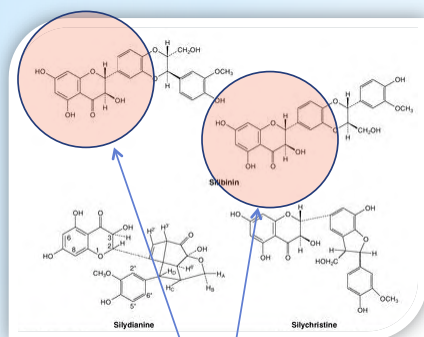


Saponins  
Polysaccharides

Botanical effects:

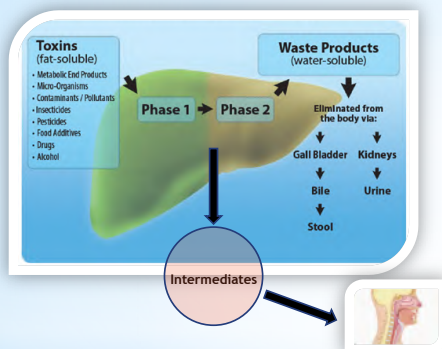
- Enhancing innate immunity (addresses hygiene hypothesis)
- Balancing atopic Th2 response (addresses hypersensitivity response)



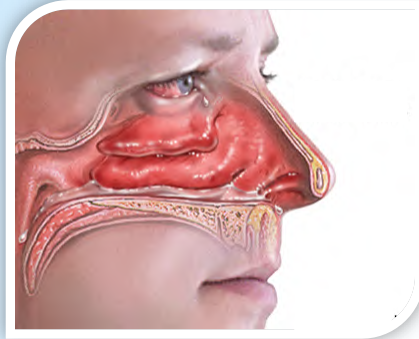


Silymarin is a flavo-lignan complex - flavonoid-related  
 Many different flavonoids have liver-enhancing and -protecting effects - especially when consumed as naturally-occurring cocktails

Egert S, Rimbach G. "Which sources of flavonoids: complex diets or dietary supplements?" Adv Nutr. 2011 Jan;2(1):8-14.



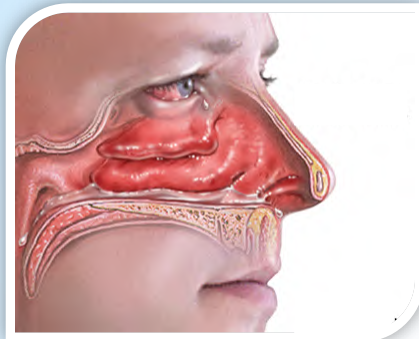
Bakhshaei M et al. "Effect of silymarin in the treatment of allergic rhinitis." Otolaryngol Head Neck Surg. 2011 Dec;145(6):904-9.



Mucosal changes: often a damp, hot tissue state

Complicated by:

- background liver intermediary metabolites
- excessive Th2 - triggered IgE response ->excessive histamine



Astringents:  
Flavonoids,  
tannins



Vasoconstrictors:  
Flavonoids, anti-  
inflammatories



Tissue tonics:  
Bitters,  
lymphatics



Herbal therapeutics: direct action on mucous membranes

- for the respiratory mucosa, but also for the gastrointestinal mucosa!



1. Pattern assessment:
  - atopy? Immune system “untrained” or hyper-reactive?
  - liver? Other rashes, headaches, joint pain, digestive troubles?
  - gastrointestinal mucosa? Digestive troubles, pain, inflammation?
2. Mucosal tonification:
  - Location (eyes? nose/throat? lungs?)
  - Degree of moisture and heat (often hot, but moisture can vary)



## \*Putting it all together

### Atopic constitution

- Almost everyone with allergies has some of this
- General strategy: immunomodulation!
  - Herbs “train” and stimulate innate immunity
  - Herbs modulate hyperreactivity through Th2 balance
- General administration: tonic herbs decocted in soup
  - But also liquid extracts, powders (smoothies, direct dosing)



## Atopic constitution

- Astragalus membranaceus
  - 5-7 grams daily via decoction
  - 5ml two-phase extract tincture 3x/day (expensive!)
  - 4-5 grams daily of powder
- Polysaccharide / saponin / triterpene rich
- Best to begin 4-6 weeks before allergy season
- Gently warming, drying

Lin Y et al. "Clinical study of astragalus's preventing the recurrence of asthma in children." Zhongguo Zhong Xi Yi Jie He Za Zhi. 2011 Aug; 31(8):1090-2.

Zinka Matkovic et al. "Efficacy and safety of Astragalus membranaceus in the treatment of patients with seasonal allergic rhinitis." Phytotherapy Research 24 (2): pp 175-181, February 2010



## Atopic constitution

- Ganoderma lucidum, G. tsugae
  - 3-4 grams daily via decoction (long-term: 6-8hrs)
  - 1ml two-phase extract tincture 2x/day
  - 3 grams daily of powder
- Polysaccharide / saponin / triterpene rich
- Works quickly at rebalancing hyperreactivity
- Drying, calming

Wen MC et al. "Efficacy and tolerability of anti-asthma herbal medicine intervention in adult patients with moderate-severe allergic asthma." J Allergy Clin Immunol. 2005 Sep;116(3):517-24.

Kelly-Pieper K et al. "Safety and tolerability of an antiasthma herbal Formula (ASHMI) in adult subjects with asthma: a randomized, double-blinded, placebo-controlled, dose-escalation phase I study." J Altern Complement Med. 2009 Jul;15(7):735-43.



## Liver dysfunction

- Can be mild or severe, generally connected to inflammation
- General strategy: cholagogues, hepatoprotectants, elimination
  - Herbs rebalance hepatic metabolism (less intermediates)
  - Herbs improve toxin metabolism (less irritation)
- General administration: bitter tinctures
  - But also milk thistle seed, ground, as food



## Liver dysfunction

- *Silybum marianum*
  - 7-10 grams of whole, ground seed daily (mixed with grains)
  - If you must, 400mg daily of 80% silymarin
  - 3-5 ml of tincture three times daily before meals
- Flavonoid, flavo-lignan rich. Whole seed also has fat, fiber
- Especially for those with liver disease history
- Cooling



Bakhshaei M et al. "Effect of silymarin in the treatment of allergic rhinitis." *Otolaryngol Head Neck Surg.* 2011 Dec;145(6):904-9

## Liver dysfunction

- Gentiana lutea
  - 1-2ml of tincture three times daily before meals
- Bitter iridoid rich
- Especially for those with digestive issues, food intolerances
- Traditional European allergy / asthma remedy
- Quite cooling



MB Antunes et al. "Complementary and Alternative Medicine in Rhinology." Rhinosinusitis, 2008

## Mucosal tonification

- The "direct" approach: but often less effective without support
- General strategy: astringent anti-inflammatories
  - Herbs reduce swelling
  - Herbs reduce mucus discharge
  - Herbs relieve irritation and inflammation
- General administration: teas and tinctures
- Additional support: nasal irrigation (with herb tea if desired)





## Mucosal irritation

- Urtica dioica
  - 3ml of fresh leaf tincture three times daily
  - 200mg - 400mg fresh freeze-dried stinging nettle capsules
- Flavonoid, serotonin rich
- Indicated in all allergic patterns - esp. red eyes, clear discharges
- Drying - good for swollen tongue, fluid retention pattern

Teucher T, Obertreis B, Ruttkowski T, Schmitz H. "Cytokine secretion in whole blood of healthy subjects following oral administration of Urtica dioica L. plant extract." *Arzneimittelforschung*. 1996 Sep;46 (9):906-10.

Mittman P. Randomized, double-blind study of freeze-dried Urtica dioica in the treatment of allergic rhinitis. *Planta Med*. 1990 Feb;56 (1):44-7.



## Mucosal irritation

- Solidago canadensis
  - 3ml of tincture three times daily
  - 5 grams daily in tea, taken throughout the day
- Flavonoid rich (esp. quercetin)
- Indicated in all allergic patterns, esp. if many mucous membranes
- Drying, cooling - also has decent digestive effects



## Mucosal irritation

- *Plantago lanceolata*
  - 3ml of tincture three times daily
  - 5 grams daily in tea, taken throughout the day
- Tannin, flavonoid rich. Also bitter principles and soothing starches
- Indicated in variable allergic patterns: dry / swollen, e.g.
- Drying, cooling - but also soothing, moistening if necessary



## Mucosal irritation

- *Petasites hybridus*
  - Unfortunately, need an alkaloid-free extract (usually caps)
  - Research looks at 24mg of petasin daily in 3 divided doses
- Polyphenols, some coumarin-like (petasin)
- Indicated in allergies with vasodilation: red, throbbing. Headaches
- Cooling. Caution still warranted with advanced liver disease

Schapowal A; Study Group. "Treating intermittent allergic rhinitis: a prospective, randomized, placebo and antihistamine-controlled study of Butterbur extract Ze 339." *Phytother Res.* 2005 Jun;19(6):530-7.

Schapowal A; Petasites Study Group. "Butterbur Ze339 for the treatment of intermittent allergic rhinitis: dose-dependent efficacy in a prospective, randomized, double-blind, placebo-controlled study." *Arch Otolaryngol Head Neck Surg.* 2004 Dec;130(12):1381-6.

Danesch UC. "Petasites hybridus (Butterbur root) extract in the treatment of asthma--an open trial." *Altern Med Rev.* 2004 Mar;9(1):54-62.



## Mucosal irritation

- *Camellia sinensis*
  - Tea. Green or black. 2-3 cups a day
  - There are green tea extract capsules available if necessary
- Tannin, flavonoid rich. Also alkaloids that open the airways
- Indicated in allergies with lots of discharge and lung congestion
- Cooling, drying, stimulating



Maeda-Yamamoto M et al. "The efficacy of early treatment of seasonal allergic rhinitis with benifuuki green tea containing O-methylated catechin before pollen exposure: an open randomized study." Allergol Int. 2009 Sep;58(3):437-44

## Mucosal irritation

- *Boswellia serrata*
  - 5 grams daily of resin can be eaten whole (Frankincense)
  - 3 ml of tincture twice daily, caution with heartburn/ulcers
- Triterpene, resin - rich
- Aromatic and anti-inflammatory: for anxious + inflamed pattern
- Warming, dispersive



Gupta I et al. "Effects of Boswellia serrata gum resin in patients with bronchial asthma: results of a double-blind, placebo-controlled, 6-week clinical study." Eur J Med Res. 1998 Nov 17;3(11):511-4.

## Mucosal irritation

- Euphrasia officinalis
  - 2 ml of tincture twice daily
  - Infusion made with 1tsp herb in 4oz water as eye wash
- Flavonoid, iridoid rich: anti-inflammatory and bitter
- Particularly for those with eye symptoms, digestive disturbance
- Cooling, drying

Stoss M et al. "Prospective cohort trial of Euphrasia single-dose eye drops in conjunctivitis." J Altern Complement Med. 2000 Dec;6(6):499-508.



### Treatment protocol structure:

Longer-term tonification of immune / liver dysfunctions if present  
 Longer-term mucosal tonics if needed: Solidago, Plantago

Short-term (during the season) mucosal anti-inflammatories  
 Pick one or two that are most indicated  
 Whole plants generally more effective



**\*Putting it all together**



Treatment protocol structure:

Supportive measures:

- Nasal irrigation! Dilute infusion of Solidago with ¼ tsp salt / pint

Garavello W et al. "Nasal lavage in pregnant women with seasonal allergic rhinitis: a randomized study." Int Arch Allergy Immunol. 2010;151(2):137-41.

- Attention to the GI tract: bitters, soothers, probiotics can help

Ouwehand AC et al. "Specific probiotics alleviate allergic rhinitis during the birch pollen season." World J Gastroenterol. 2009 Jul 14;15(26):3261-8.



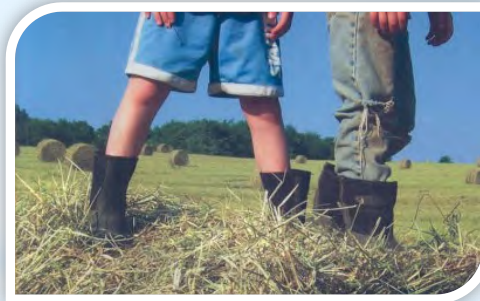
\*Putting it all together

Treatment protocol structure:

Supportive measures:

- Move the body and enhance biodiversity ( = get outside!)

Ilkka Hanski et al. "Environmental biodiversity, human microbiota, and allergy are interrelated." PNAS 2012. published ahead of print May 7, 2012. 118 adolescents in Finland: those living in areas with greater biodiversity (plants - forest and field) had a more diverse microbiome on their skin and lower rates of atopy. PLANT DEFICIENCY SYNDROME!



\*Putting it all together



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