Management of EoE:
Diet, PPI, biologics and future directions

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Financial Disclosures:

I have relationships with Regeneron, Sanofi, and Takeda as an advisory board member and speaker. The relationships have been mitigated as possible to not impact this presentation.

Goals of Therapy:

Goals:

- Improve / control symptoms
- Prevent complications
- Achieve endoscopic and histologic remission (<15 eos/hpf, LPF, BZH)

Considerations:

- Efficacy of treatment
- Ease of administration
- Cost
- Patient preference / ability to adhere to treatment regimen
- Patient's baseline diet and nutritional status

Current Treatment Options

Dietary Elimination

Proton Pump Inhibitors

Swallowed Topical Steroids

Biologics (Dupilumab)

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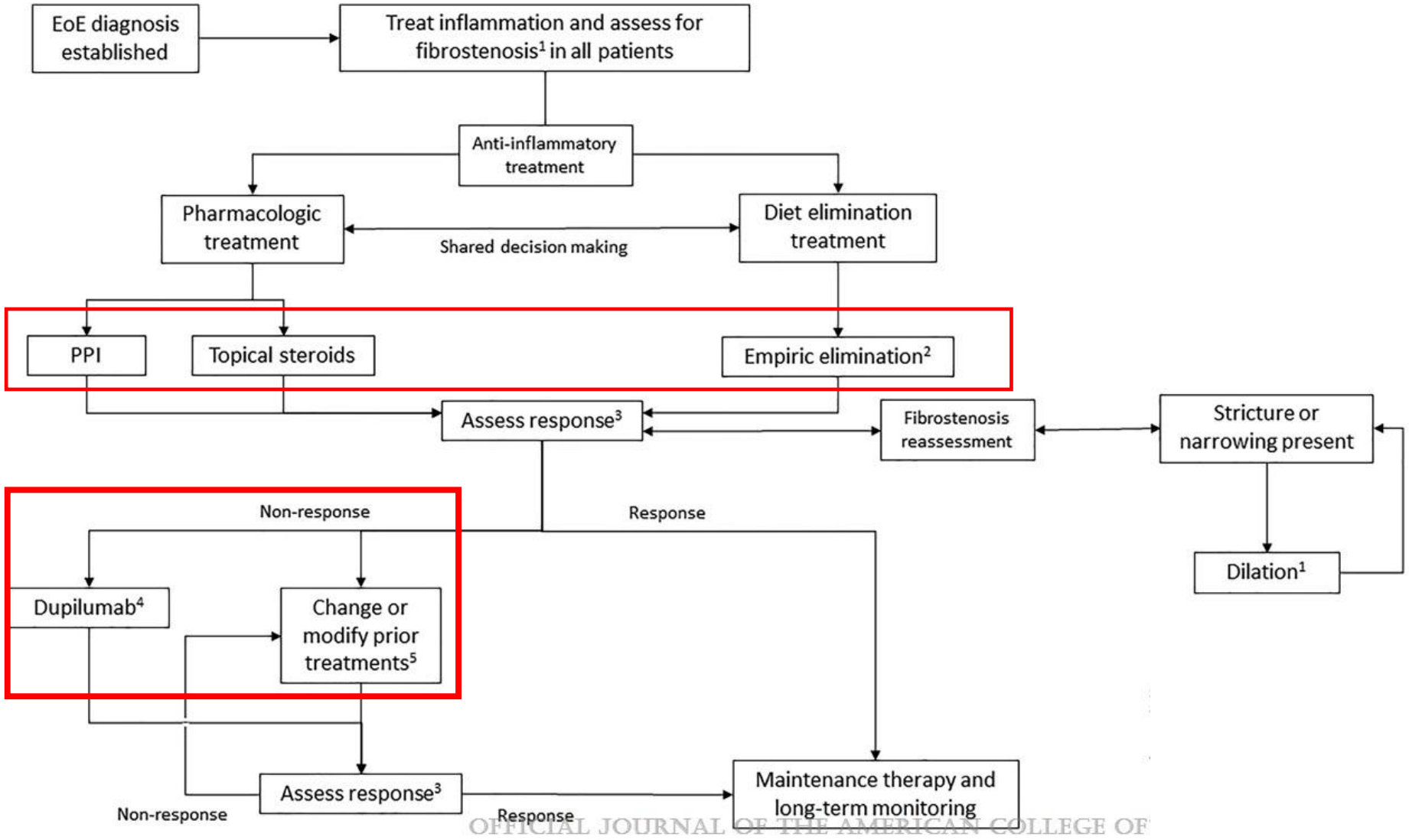
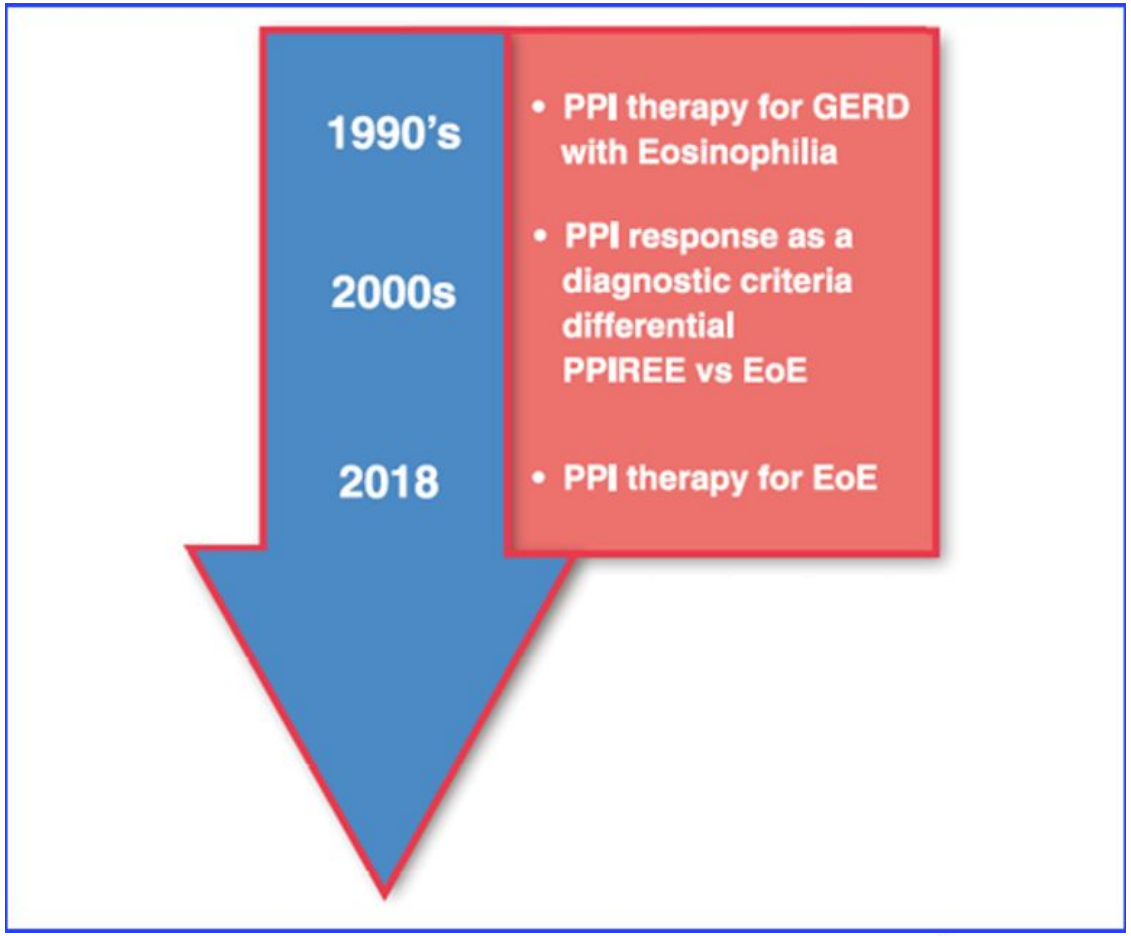


Dellon ES, et al. ACG. 2025.

Proton Pump Inhibitors:

- Treatment with PPI's for EoE is not simply treating reflux.
- Any of the PPIs can be effective when used at 'high dose' (1mg/kg/dose – max 80mg/day)
- Overall histologic response rate in observational studies (<15 eos/hpf) average ~40% in pediatric studies



Franciosi JP et al, J Asthma Allergy 2022

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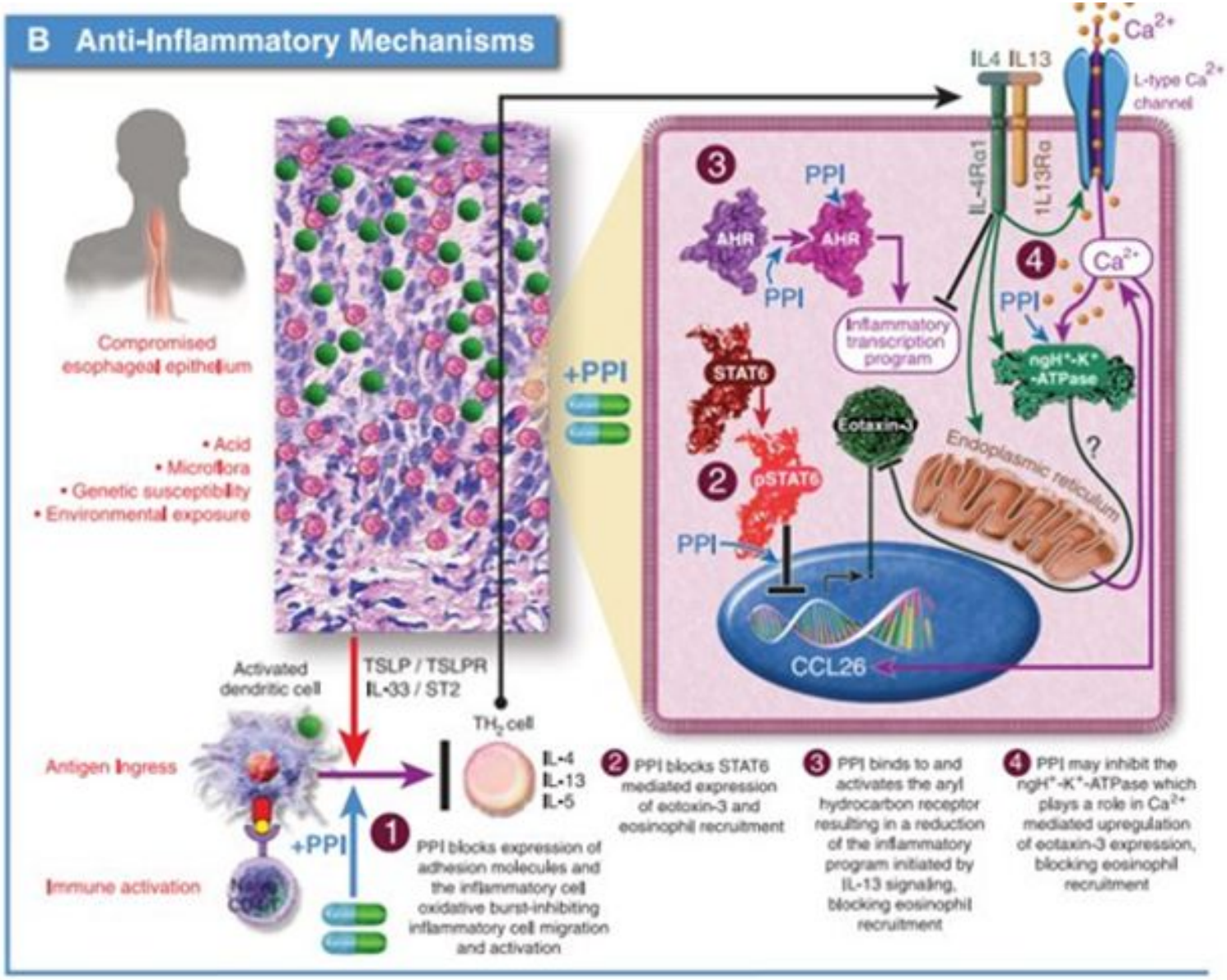
Proton Pump Inhibitors:

Franciosi JP et al, J Asthma Allergy 2022

Mechanism of Action:

- Antacid properties: barrier restoration
- Anti-inflammatory properties: blocks STAT6 mediated expression of eotaxin-3



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Proton Pump Inhibitors: Key Points

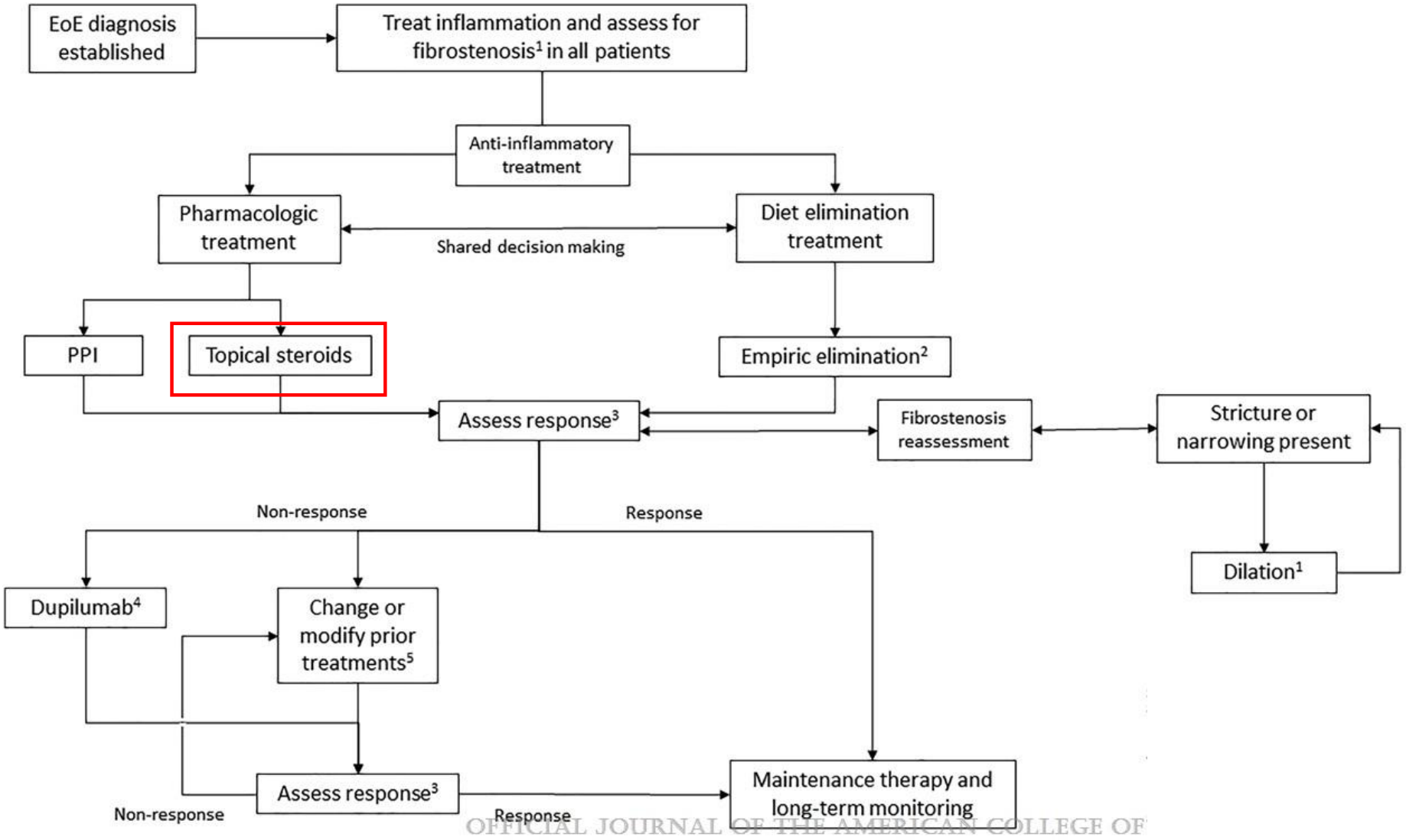
Pros:

- Widespread availability
- Ease of administration
- Safety profile

Cons:

- "Systemic" medication
- Lower efficacy (~40%)
- While absolute risk remains controversial potential side effects include:
  - Infection: C diff, pneumonia, URI's
  - NEC
  - Fractures

Hirano et al. Gastro, 2020; Rank et al. Gastro 2020
Laserna-Mendieta EJ et al. Aliment Pharmacol Ther 2020.



Dellon ES, et al. ACG. 2025.

Swallowed Topical Steroids:

- Studies have shown efficacy with swallowed topical steroids with rates of remission from 60-75%.

- Generally safe and recommended with minimal side effects:
  - Adrenal insufficiency, growth suppression, osteoporosis (<5%)
  - Candidiasis (12-15%)

- Anti-inflammatory and anti-fibrotic properties

Lucendo AJ et al. Gastro 2019; Rank et al. Gastro 2020
Dellon ES et al. Gastro 2019; Hirano et al. Clinic Gastro, 2022
Dellon ES et al. Clinic Gastro 2022

Swallowed Topical Steroids:

Administration:

- Slurry: home mix of Pulmicort respules + thickener (Splenda, maple syrup, apple sauce, nutricate, ThickIt)
- MDI without spacer
- Cannot eat/drink for at least 30 min after administration
- Orodispersable tablet available in Europe – under study in US

Medication	Formulation	Dosing	Clinical Status
Budesonide	Inhalation suspension mixed as a viscous slurry	1-2 mg daily to twice daily	
Budesonide	Oral suspension (Eohilia®)	2 mg twice daily	FDA approved for 11 yrs and older
Budesonide	Orodispersable tablet	0.5-1.0 mg twice daily	Phase 3
Fluticasone HFA	Swallowed aerosolization	220-440 mcg twice daily	
Fluticasone	Orodispersable tablet	1.5 mg-3.0mg twice daily	Phase 2b

Similar rates of histologic remission with fluticasone (64%) vs budesonide (71%)

Lucendo AJ et al. Gastro 2019; Rank et al. Gastro 2020
Dellon ES et al. Gastro 2019; Hirano et al. Clinic Gastro, 2022
Dellon ES et al. Clinic Gastro 2022

Swallowed Topical Steroids: Key Points

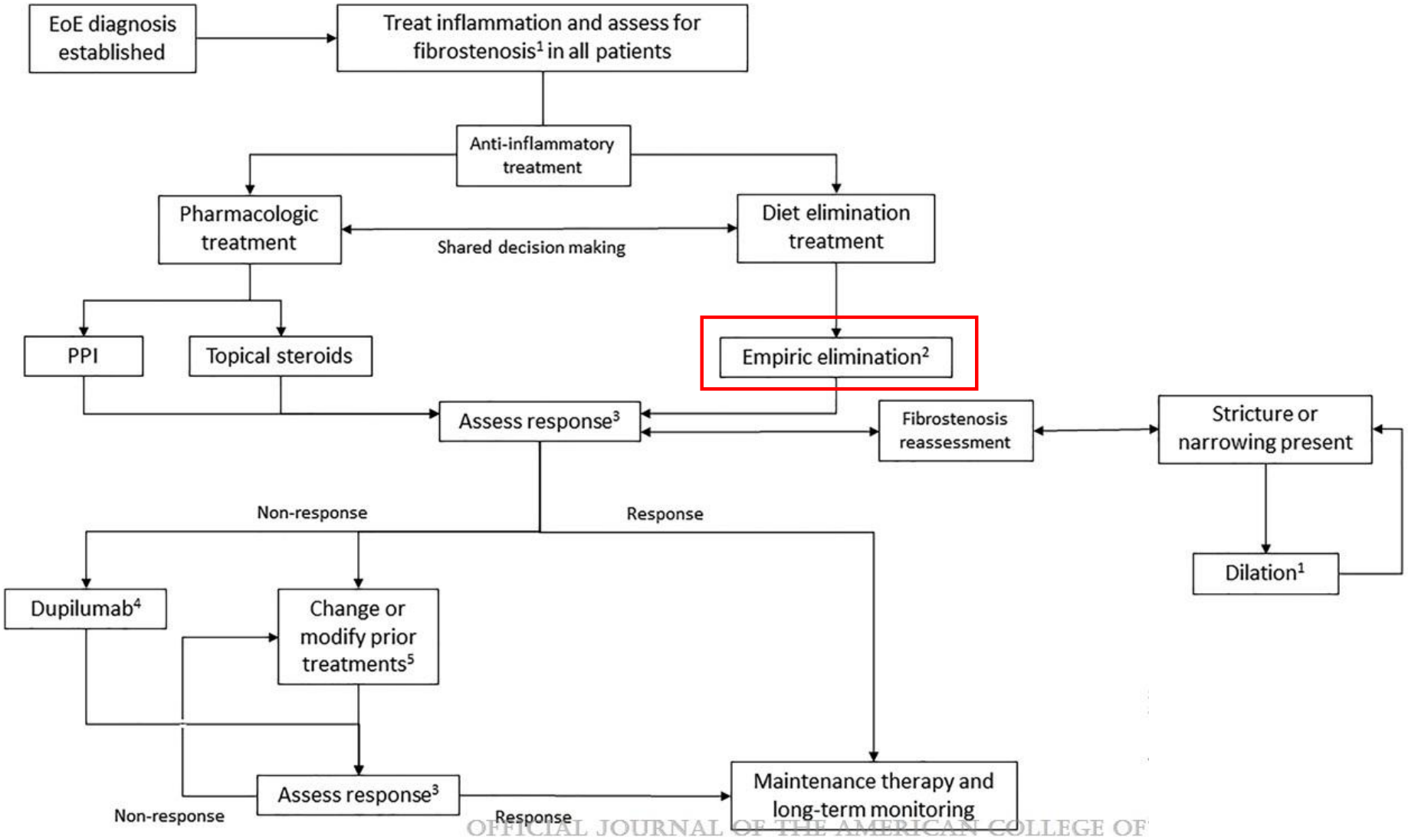
Pros:

- Effective (60-85%)
- Favorable safety profile
- “Topical” (<15% bio-availability)

Cons:

- Administration (home mix)
- Potential side effects

Hirano et al. Gastro, 2020
Rank et al. Gastro 2020
Dellon ES et al. Gastro 2019



Dellon ES, et al. ACG. 2025.

Dietary Therapy:

Historically, there have 3 approaches to diet therapy in EoE:

1. **Elemental** diet (amino-acid based formula)

2. **Empiric elimination** diet (One, Two, Four, or Six Food Elimination of common allergens – milk, wheat, egg, soy, fish, and nuts) – either a step-up or step-down approach.

3. **Targeted** diet elimination aided by allergy testing (skin prick, patch testing, or IgG4) which has varying rates of response (~24-65%) – **NOT recommended due to limited accuracy of testing**

Diets	Specific recommendation	Results
Elemental diet	Elemental formula	Adults and children ~ 90%
Elimination diet		
6-food	Cow's milk, wheat, eggs, soy/legumes, seafood, nuts	Adults 52–70% Children 74%
4-food	Cow's milk, wheat, eggs, soy/legumes	Adults 52–70% Children 74%
2-food	Cow's milk, wheat	Adults and children 43%
1-food	Cow's milk	Adults and children 44–70%

Molina-Infante J, *et al. J Allergy Clin Immunol.* 2018;142:41-47.
Egan M, *et al. Ann Allergy Asthma Immunol.* 2018;121:162-67.

Dietary Therapy: 1FED vs 6FED

Kliewer KL et al. Lancet Gastro Hepatol 2023

- 129 patients randomly assigned to 1FED or 6FED
- At 6 weeks 40% of 6FED and 34% of 1FED reached histologic remission [95% CI-11 to 23]; p=0.58
- Suggest eliminating animal milk alone is an acceptable initial dietary therapy

Dietary Therapy: Key Points

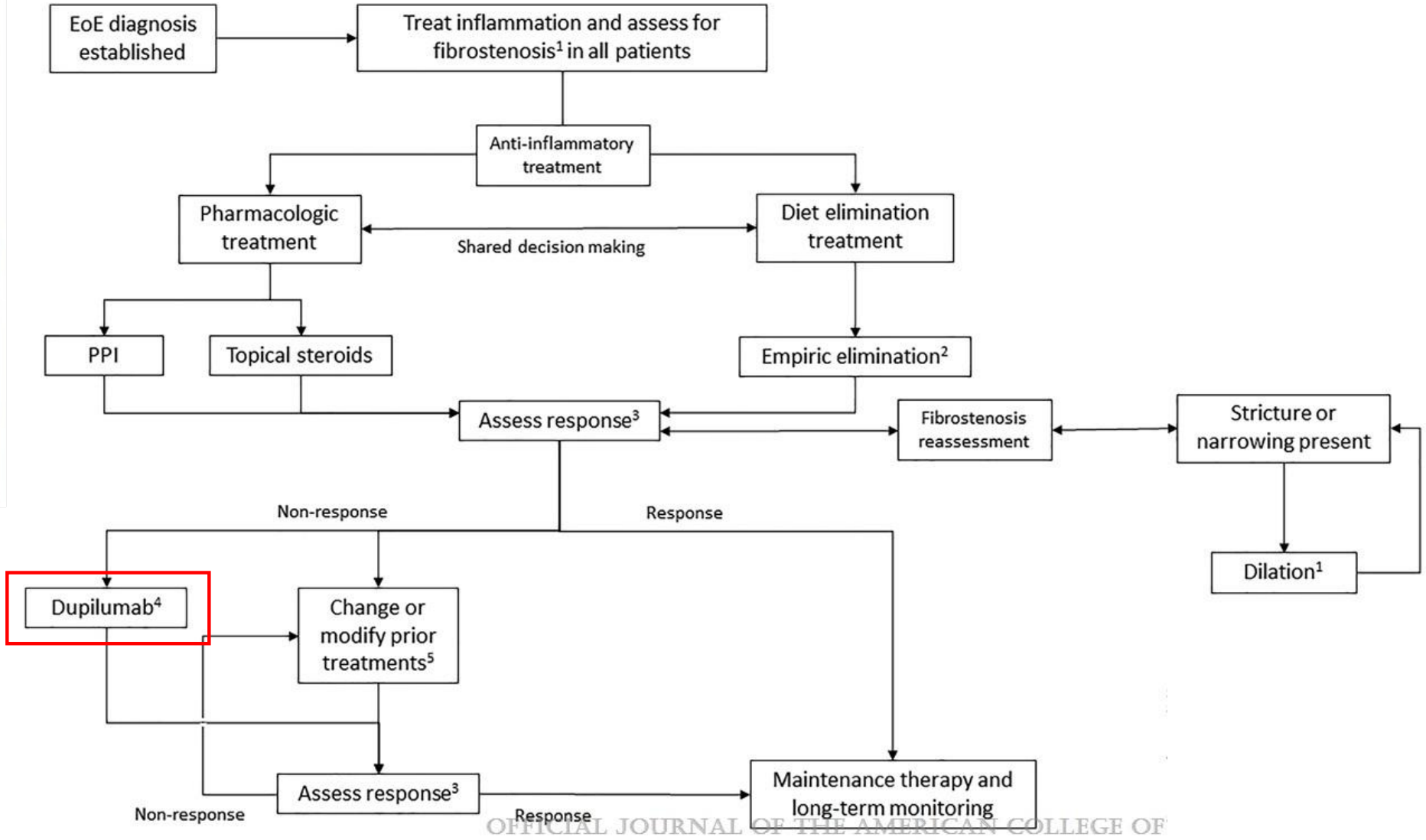
Pros:

- Effective
- “Natural”
- Essentially no side effects

Cons:

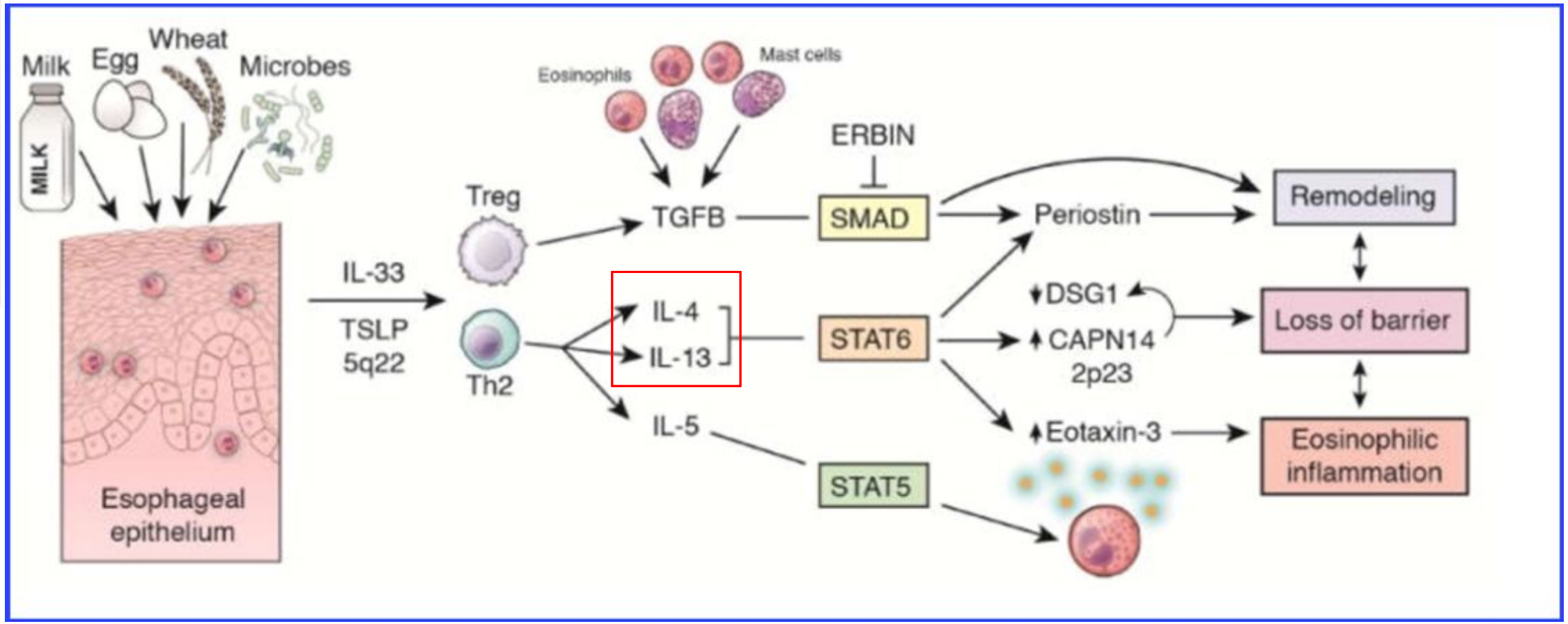
- Compliance challenges
- Nutritional concerns
- Unavailable in patients with an already limited diet
- Development of an unhealthy relationship with food
- Frequent endoscopies / more sedation

Involvement of an RD is essential for successful Dietary Therapy



Dellon ES, et al. ACG. 2025.

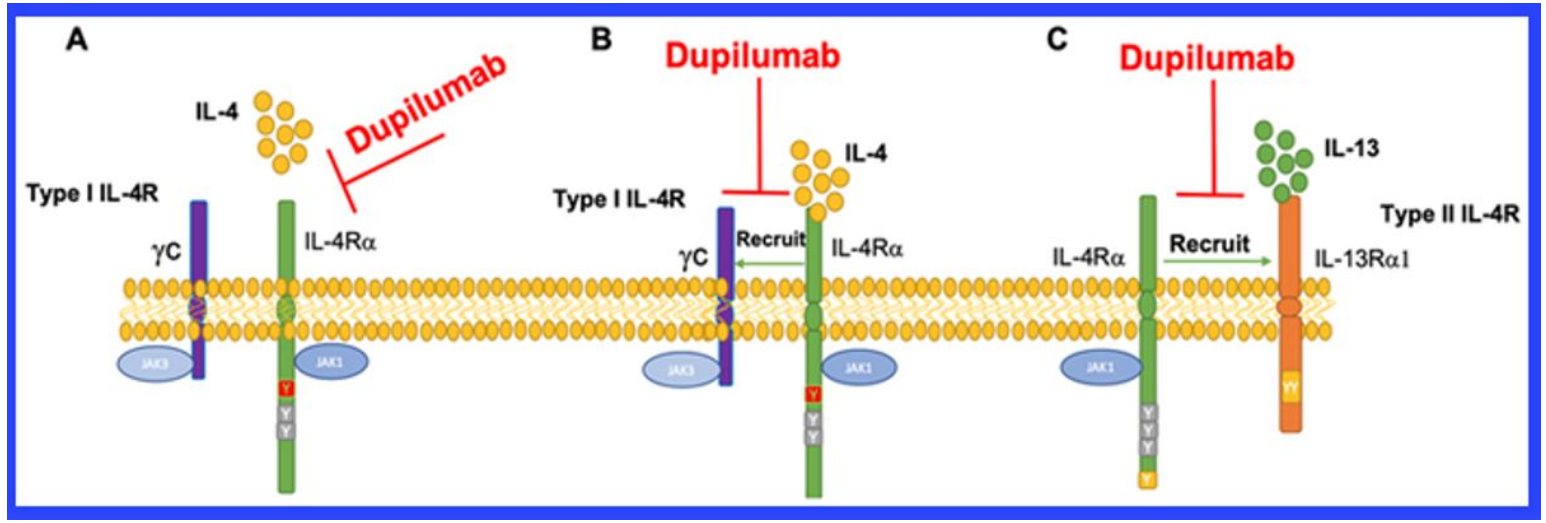
Biologics: Dupilumab



O'shea, et al. *Gastroenterology*. 2018;154:333-45.

Biologics: Dupilumab

- Fully human monoclonal antibody
- Targets IL-4α subunit of the shared IL-4 and IL-13 receptor
- Down-regulates Th2 pro-inflammatory mediators implicated in many atopic conditions



Harb H, *et al. Clin Exp Allergy.* 2020;50:5-14.

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Biologics: Dupilumab

- Efficacy over placebo (40-85%); with ~ 65% effectiveness with inducing remission observational studies

- FDA Approved as a monotherapy in EoE for children meeting both criteria:
  1. > 1yr of age
  2. > 15kg.

- Dosing is weight based:
  - 15kg-30kg: 200mg every other week
  - 30-40kg: 300mg every other week
  - > 40kg: 300mg every week.

Dellon ES et al. N Engl J Med. 2022

Biologics: Dupilumab

- Favorable safety profile
- Injection site reactions and pain with injections by far the most reported side effect
- Headache, conjunctivitis, HSV, arthralgias also reported at low rates

Incidence of Adverse Events at Week 24

Adverse Event	Part A		Part B		
	Dupilumab, weekly (N=42)	Placebo (N=39)	Dupilumab, weekly (N=80)	Dupilumab, every 2 wk (N=81)	Placebo (N=78)
	no. of patients (%)				
Death	0	0	0	0	0
Any adverse event	36 (86)	32 (82)	67 (84)	63 (78)	55 (71)
Serious adverse event	2 (5)	0	5 (6)	1 (1)	1 (1)

Dellon ES et al. N Engl J Med. 2022

Biologics: Dupilumab

When to consider as step-up tx?

- Weight concerns/FTT
- Frequent dilation requirement
- EoE refractory to other therapies due to:
  - Persistent symptoms
  - Persistent esophageal inflammation
  - Adverse effects of current therapy
  - Inability to adhere to current therapy

When to consider as first line tx?

- Severe EoE (FTT, esophageal stricture)
- Comorbid atopic conditions that would otherwise benefit from Dupilumab such as moderate, persistent asthma or eczema that is difficult to control

Biologics: Dupilumab – Key Points

- Second line or rescue therapy
- Effective
- Favorable safety profile
- Overlapping use with other atopic/allergic conditions
- Unknown side effects with long term use

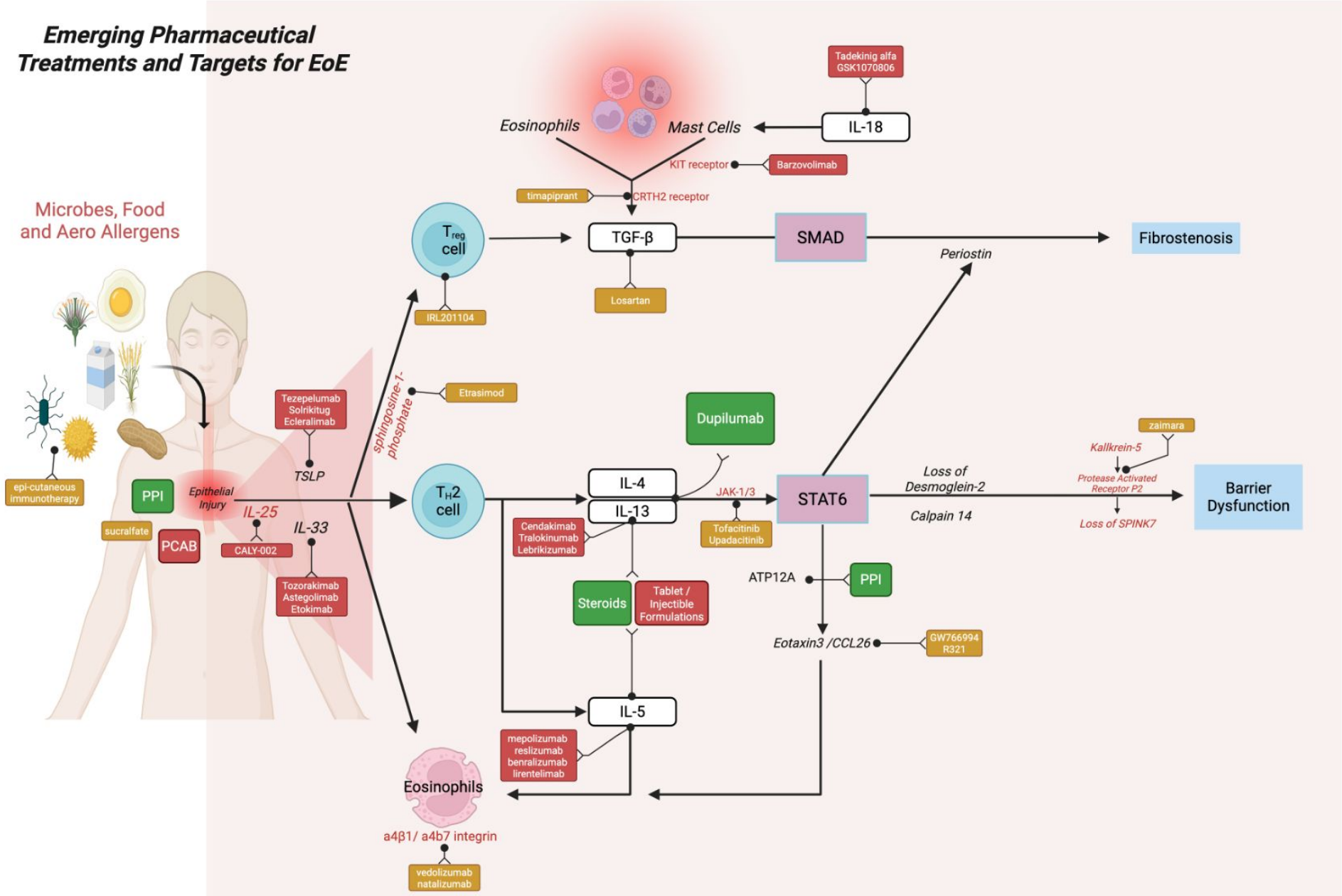
What might the future hold?

Biologics: Unsuccessful

Medication	Mechanism of Action	FDA Approved Indications	Trial Stage
Benralizumab	IL5-R antagonist	Severe asthma (12+ years)	Phase 3
Reslizumab	Anti IL-5	Severe asthma (18+ years)	Phase 3
Lirentilumab	Anti-Siglec 8	None	Phase 3
Mepolizumab	Anti IL-5	Severe asthma (6+ years), HES (12+ years), chronic rhinosinusitis with polyposis (18+ years), EGPA (18+ years)	Phase 2
Omalizumab	IgE antagonist	Moderate/severe asthma (6+ years), chronic urticaria (12+ years), nasal polyposis (18+ years)	Phase 2
Etrasimod	S1P receptor modulator	Ulcerative colitis (18+ years)	Phase 2

https://clinicaltrials.gov/search?cond=Eosinophilic%20Esophagitis.

Emerging Pharmaceutical Treatments and Targets for EoE



Dickerson, Dellon, Aceves. Ann All and Clin Imm. 2025

New Treatments?

Medication	Mechanism of Action	FDA Approved Indications	Trial Stage
Cendakimab	IL-13R antagonist	None	Phase 3
Tezepelumab	Anti-TSLP	Severe asthma (12+ years)	Phase 3
Barzolvolimab	Anti-KIT	None	Phase 2
CALY-002	IL-15	None	Phase 1

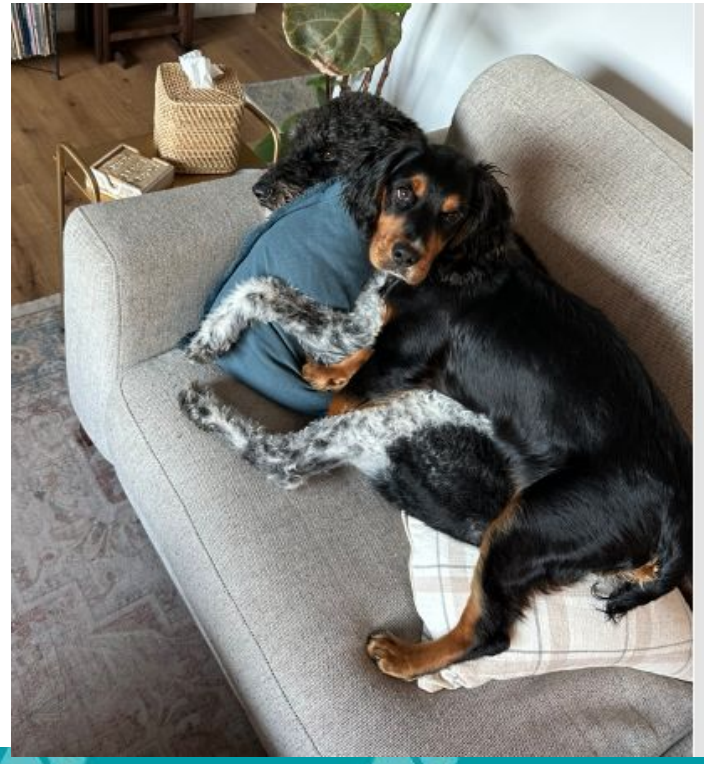
How to decide the right therapy?

How to Discuss with Patients and Families

- Lay out treatment options and what each entails
  - Emphasizing that this is a chronic disease that requires some form of treatment
- Multi-disciplinary team is crucial
  - This disease benefits from the expertise of allergists, dieticians, psychologist, and feeding therapists
- Shared decision making is key
  - Goal is to be patient AND family centric
  - Compliance at home does not always mean compliance outside the home (particularly for adolescents on diet therapy)
  - Goals can change with time. A decision initially does not preclude a change of mind in the future
- Patient and family should have time to think about their options
  - Allow consideration for the QOL, social, and financial implications

Thank You


Translational Research Award
International Eosinophil Society
2025
Seema Aceves, MD, PhD



Questions?

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