



Topical Therapies in Allergic Cases in Dogs and Cats + More

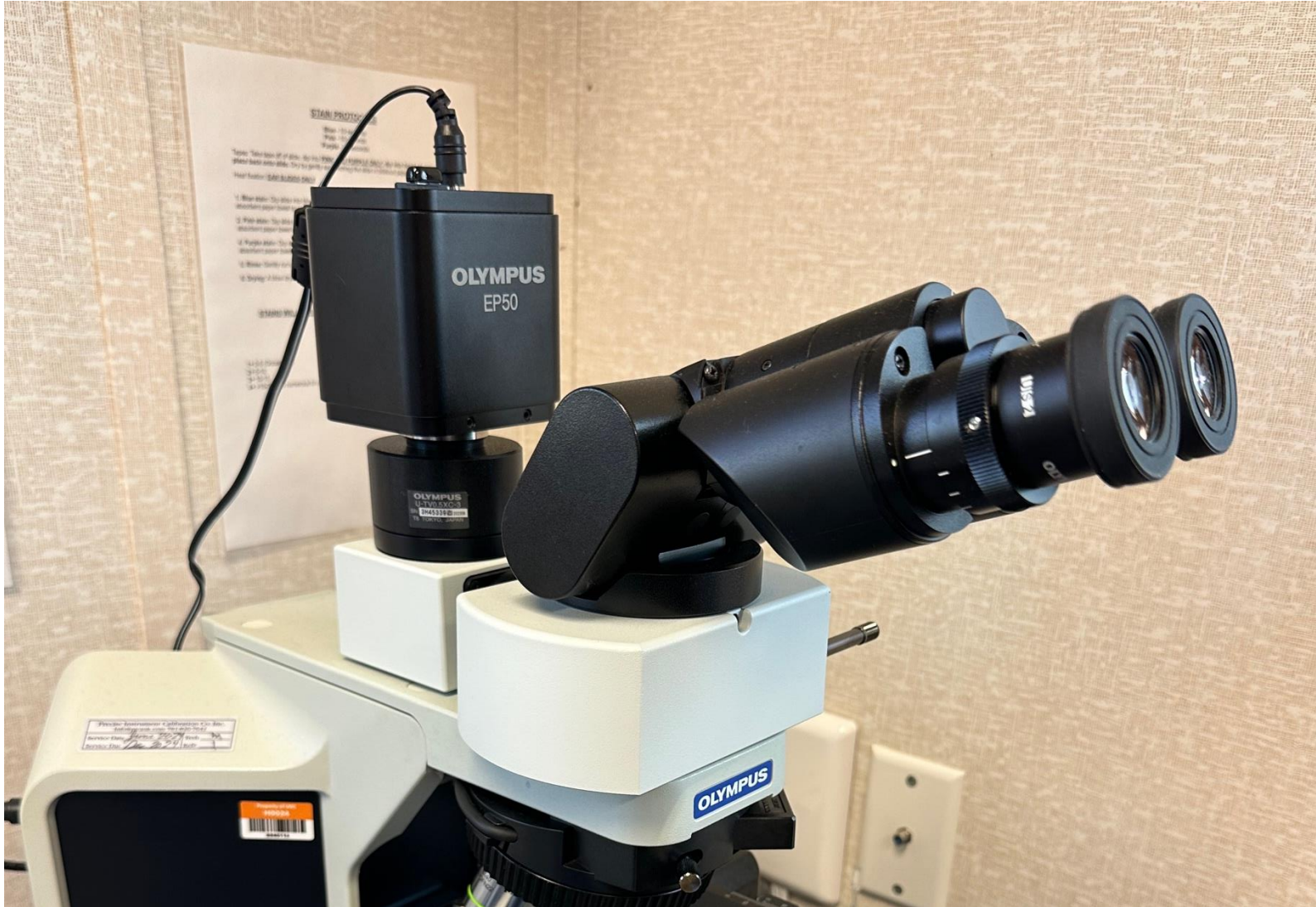
By Carolyn Emery, DVM, DACVD

Dermatologist for Cape Cod Vet
Specialists (CCVS)

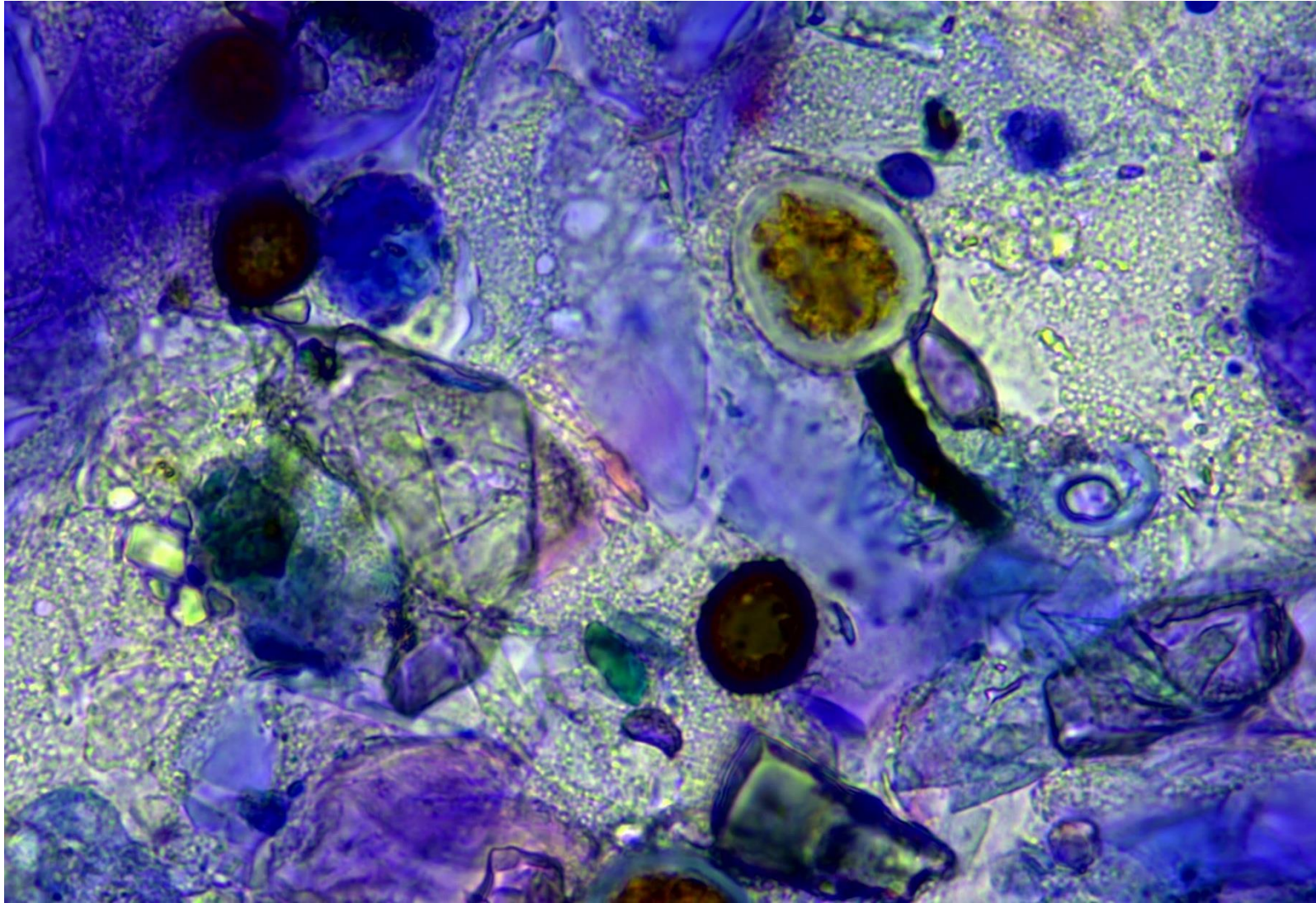
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CV

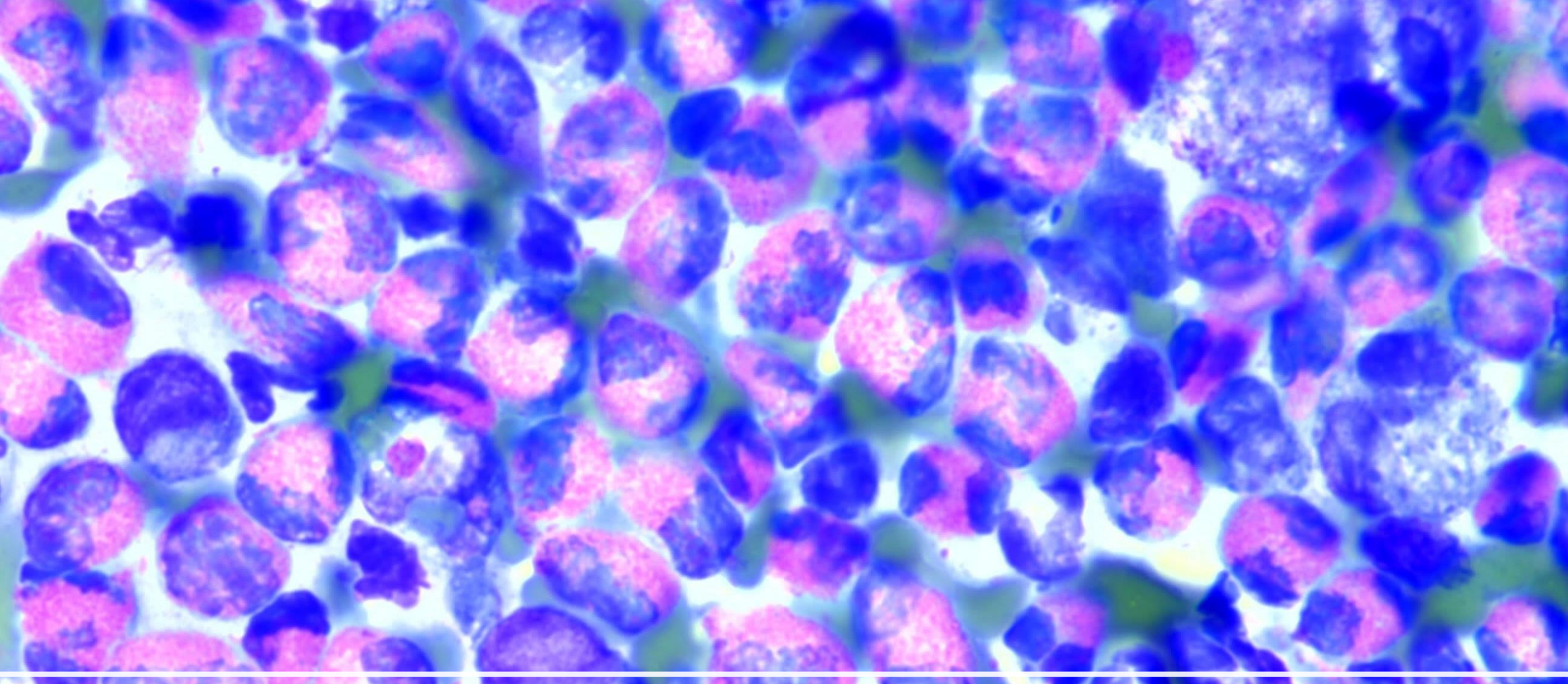
- UMASS Amherst 08
 - St. George's University 2014
 - NEAMC 2015
 - GCVS 2016
 - PVES 2017
 - Davis 2017-2019
 - Medvet 2020-2023
 - C CVS 2023-now
 - I have no conflicts of interest.
- 
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Motto of the
day: You can
never
cytology
enough!



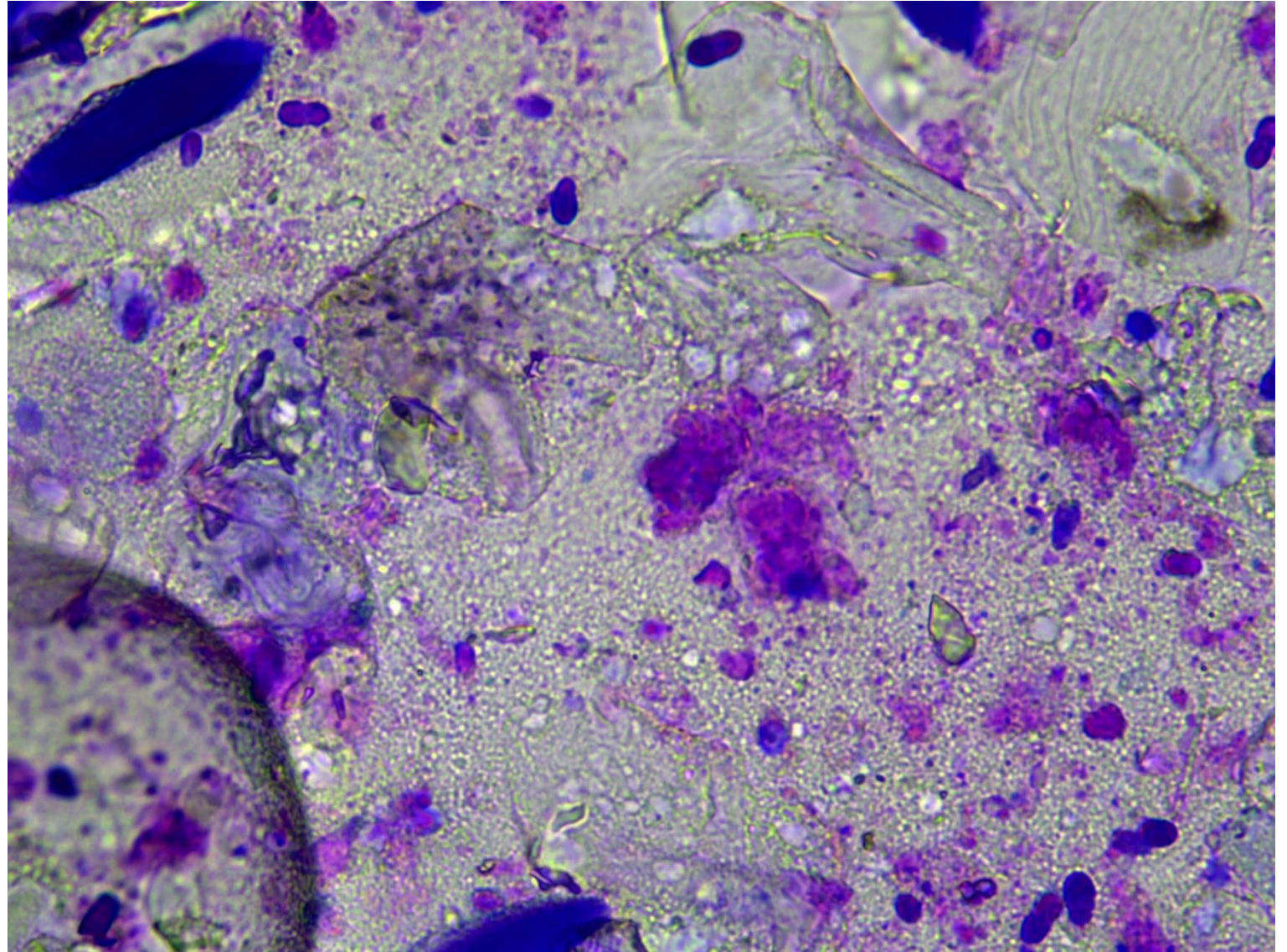
Ragweed



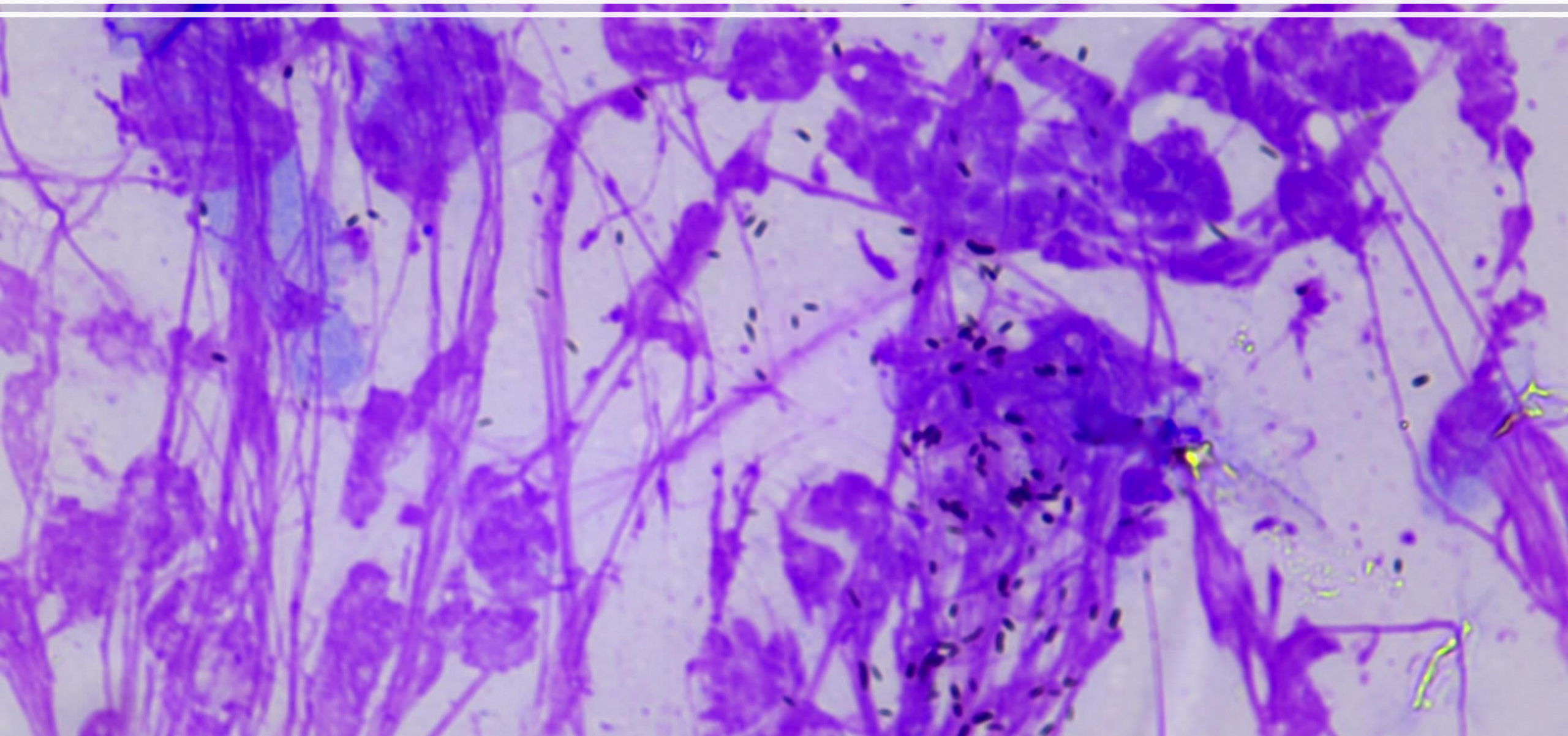
Eosinophils



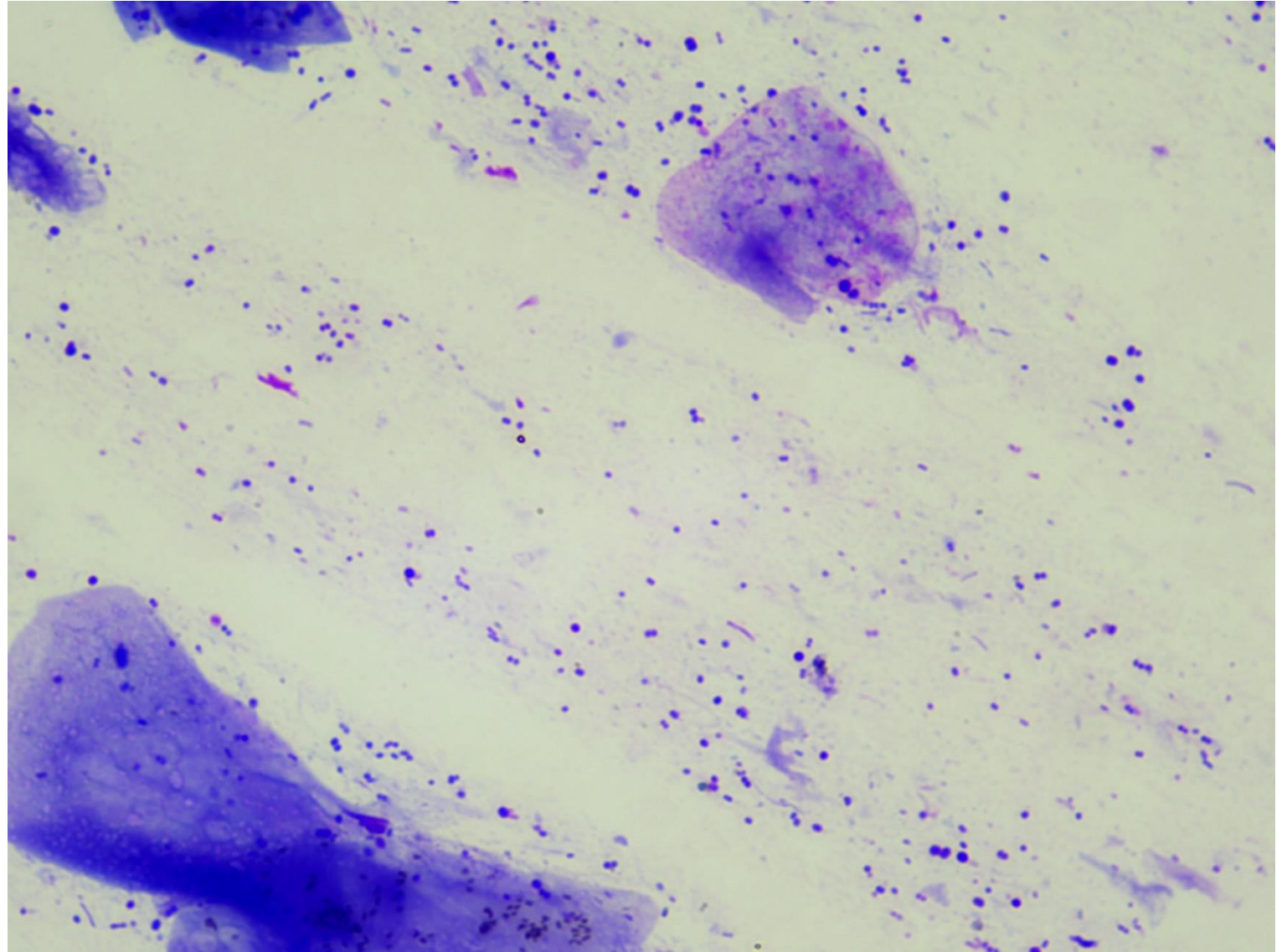
Yeast



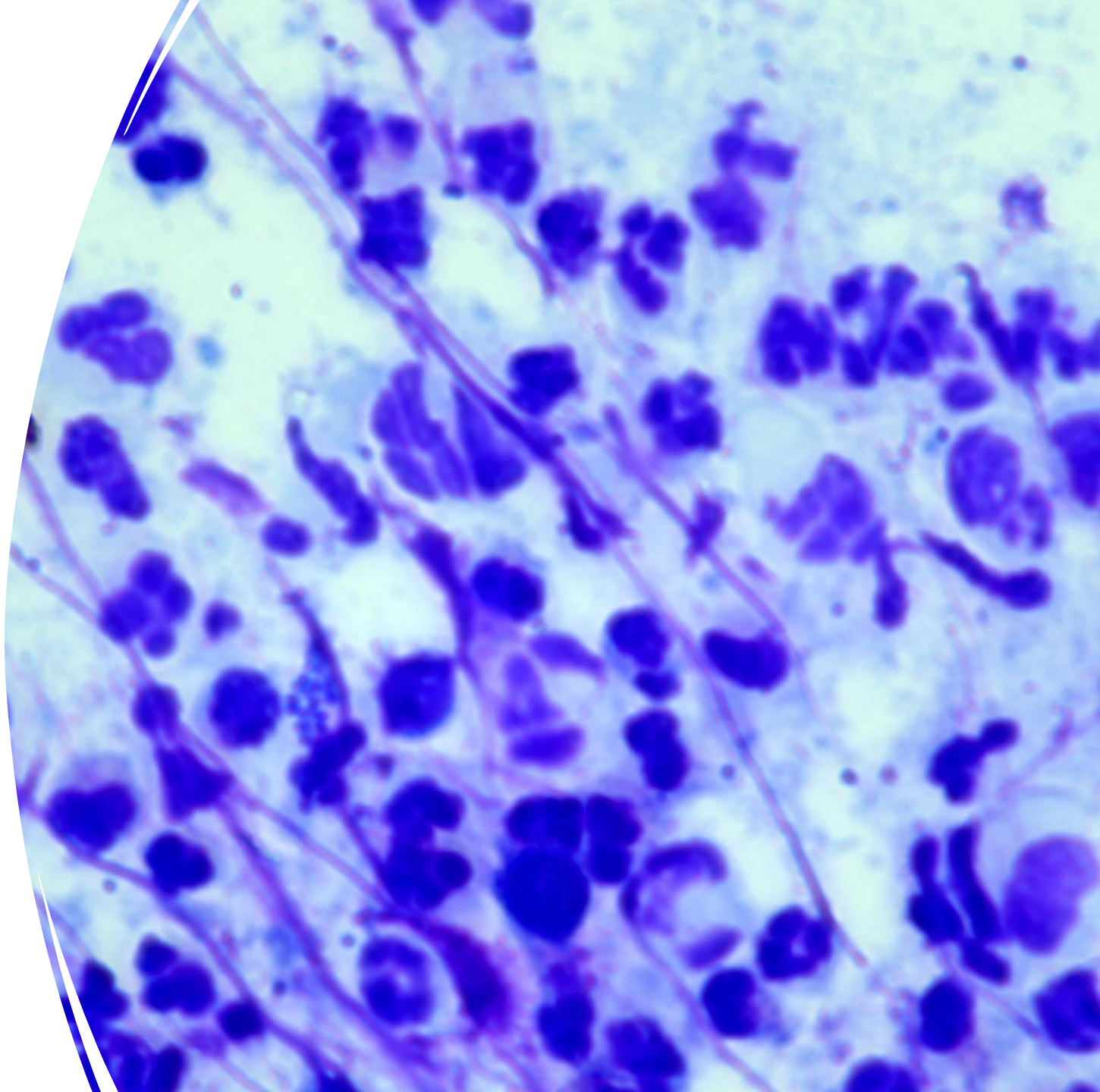
Melanin granules



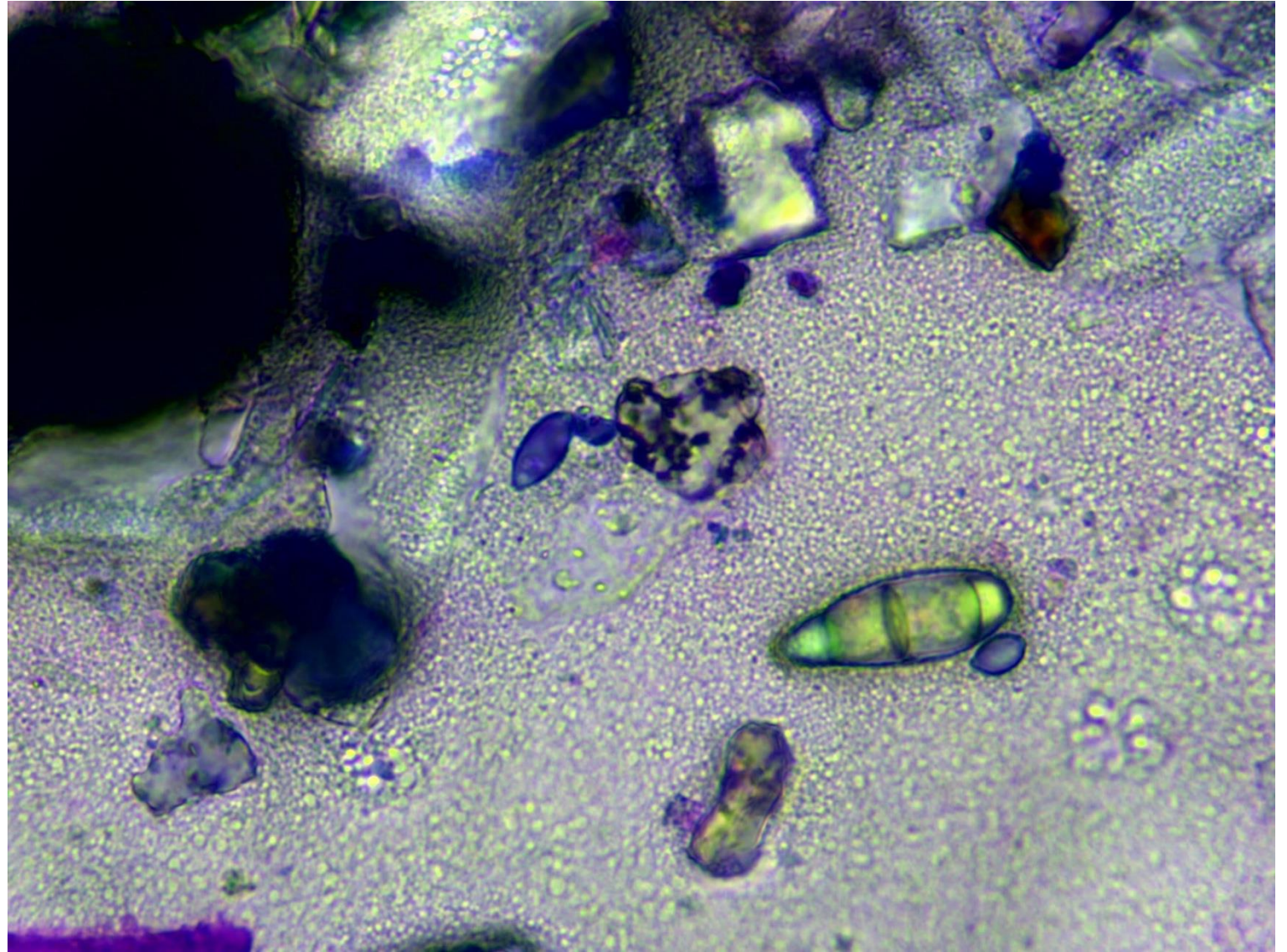
Staph



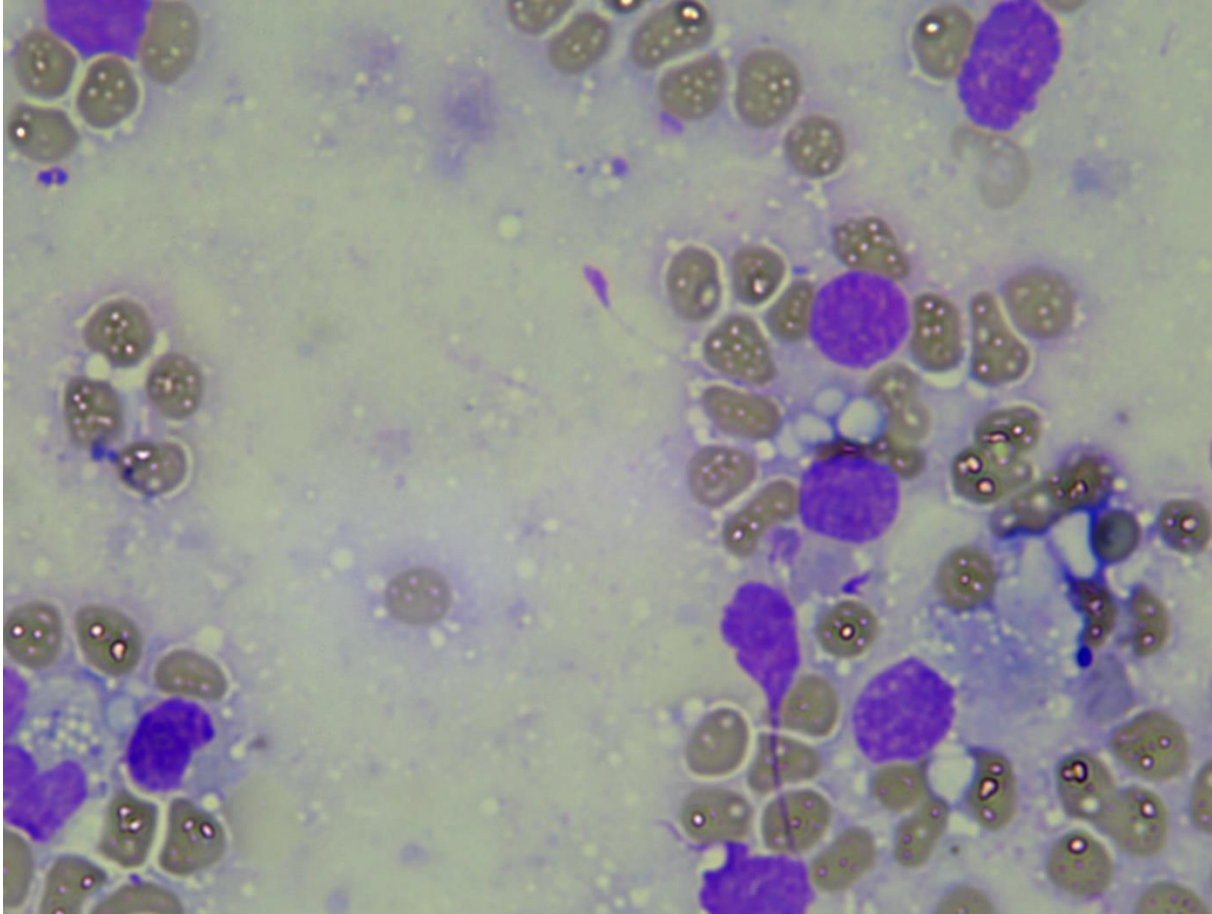
Staph 2

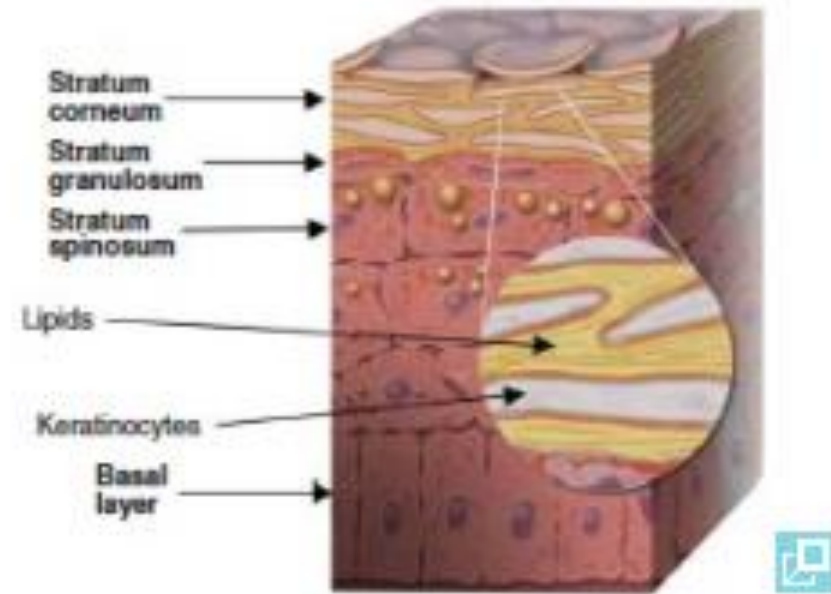
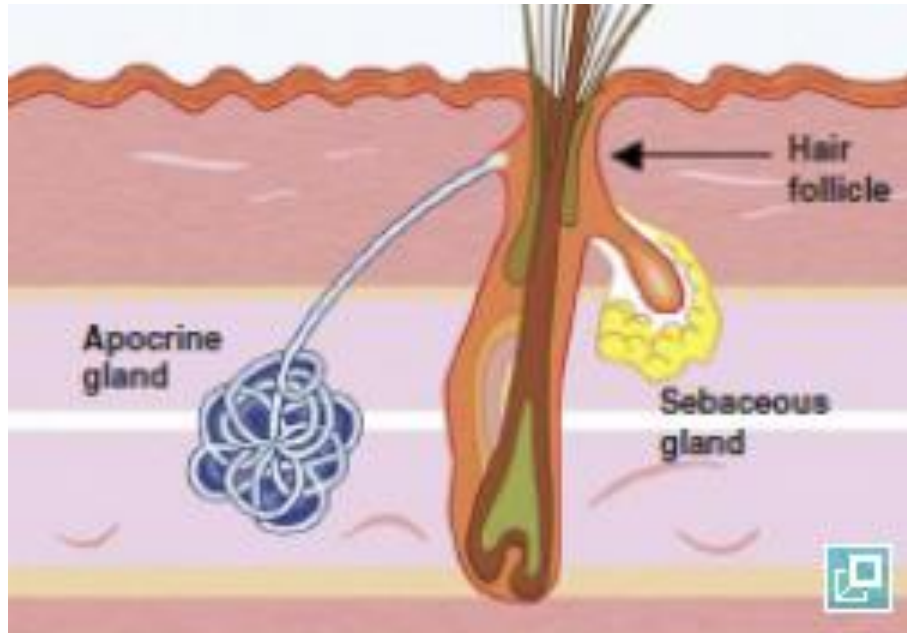


Mold



Carcinoma



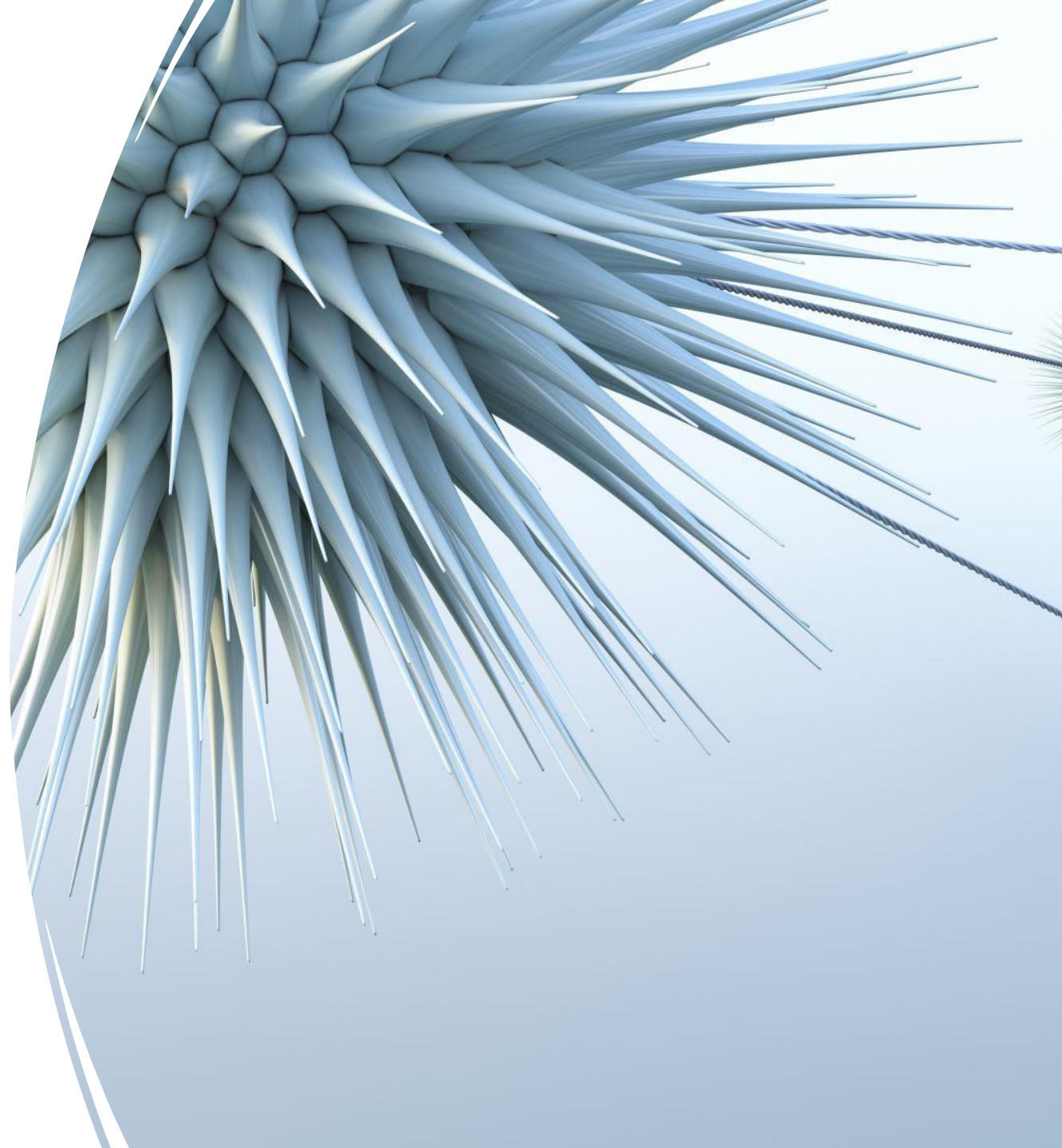


Topical therapy

<https://www2.zoetis.ca/dermatology/cutaneous-anatomy-physiology>

Skin Barrier

- Pollens sitting on the barrier cause an overactive TH2 response
- If only a mild TH1 response-not really reacting
- Immunotherapy try to shift from overactive TH1 to TH2
- Use topicals for removal, improving a defective barrier, and microbe treatment and control



Client Compliance

This is going to be the hardest thing to get busy people to do.

As a dermatologist I know my clients are normally willing to do more.

What have they used?

What do they like?

What do they find that is helpful?

What do they don't like?

Did they have any reactions topically?

Are they scared of any of the topicals? Fear Free-lick mats ex.

Client Compliance

What frequency
has worked in
the past?

What is
realistic?

Where are they
doing it?

How are they
doing it?

Why is it
important?

Know why you
are using it!

Topical Therapies

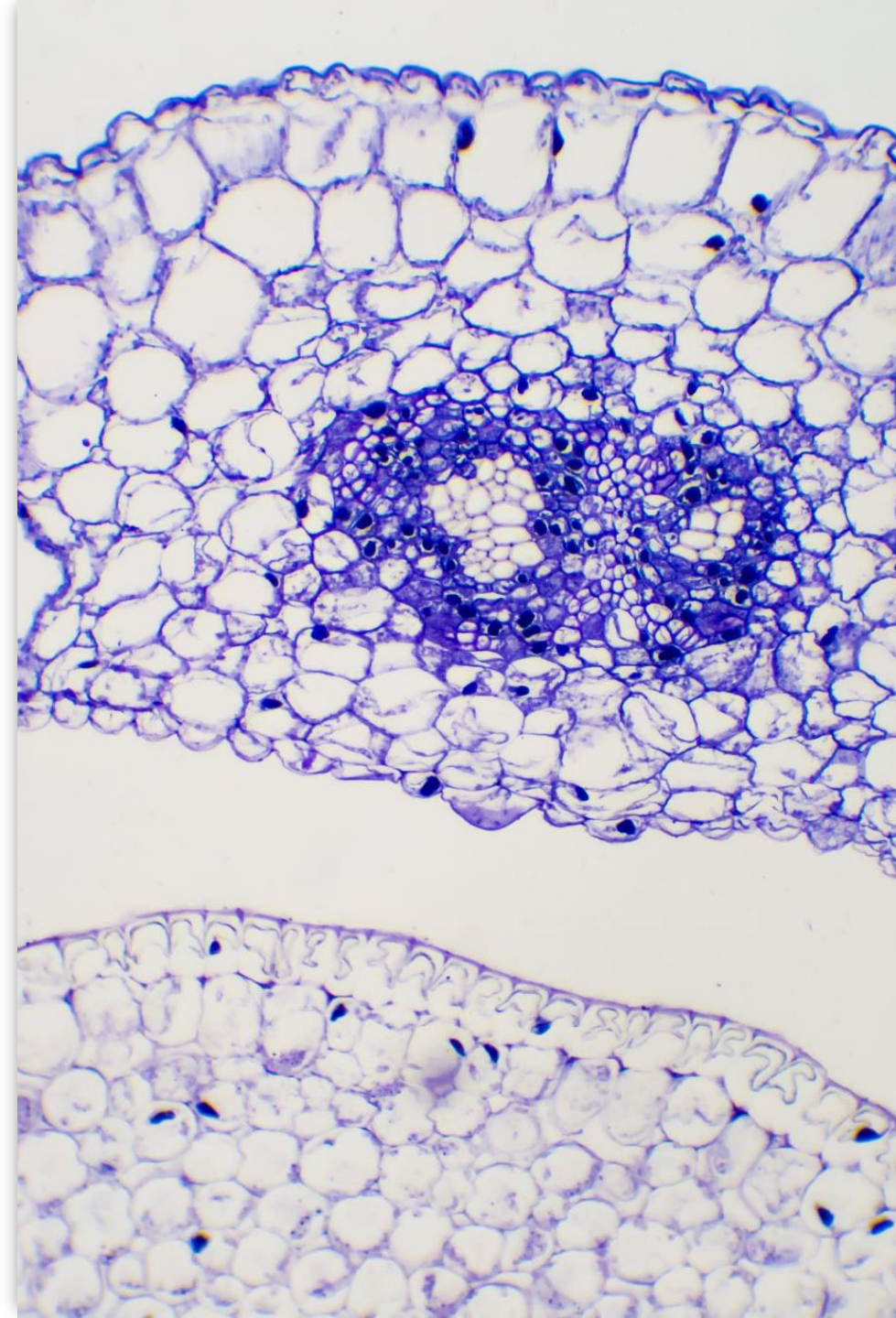
Most drugs only penetrate 1-2% after 16-24 hours

Factors that influence drug effects on the skin-selecting a vehicle

- Solubility of the drug
- Ability of the drug to hydrate the stratum corneum
- Rate of release of the vehicle
- Stability of the active agent of the vehicle
- Interactions (physical and chemical) of the vehicle
- Active agent
- Stratum corneum

Stratum Corneum

- The stratum corneum, composed of corneocytes and an intercellular matrix lipid bilayer, is the major deterrent to water loss and very important to the barrier function of the skin.
- The lipids of this layer are derived from phospholipids and lipids secreted by the keratinocytes as they migrate to the stratum corneum and from sebum.
- One of the most important lipids in the lipid bilayer is sphingomyelin.
- Ceramides are one of the major component lipids that make up sphingomyelin.
- Ceramides are composed of sphingosine and a fatty acid and are found in high concentrations within the cell membrane.
- Ceramides appear to be important in controlling the water loss from the epidermis.



Hydrotherapy

- Hydration plays a bigger role than temperature in affecting absorption.
- Transepidermal water loss (TEWL)= “the loss of water that passes from the inside of the body through the epidermis to the surrounding atmosphere via diffusion and evaporation processes.”
 - Measurement of the function of the skin barrier
 - Ex. Evaporimeter, DermaLab, or Niskiso-Ysi’s Model H4300
 - May be useful for identifying skin damage caused by certain chemicals, physical insult or pathologic conditions such as atopic dermatitis (AD)
 - It is well established in some humans with AD that TEWL is higher, which implies decreased barrier function and leads to the possibility that allergens and irritants can more easily penetrate the skin



Topical Therapy

- Delivery systems: shampoos, rinses, powders, lotions, liquid aqueous and organic spot-on formulations, sprays, creams, emulsions, ointments, and gels (including transdermal gels)
- Vehicles contain ingredients to adjust the pH, stabilize the active agents, prolong the effects of the active ingredients, promote delivery of the active agents to the skin surface or into or through the stratum corneum, and make the product cosmetically pleasing (e.g., fragrance).

Types of Medicated Topicals

- 1) Antiparasitic-pyrethrins and synthetic pyrethroids.
- 2) Antiseborrheic shampoos-salicylic acid, sulfur, benzoyl peroxide, zinc gluconate, pyridoxine, phytosphingosine, tar, and selenium sulfide in various combinations and strengths.
- 3) Antibacterial-chlorhexidine, benzoyl peroxide, phytosphingosine, ethyl lactate, glycoproteins (mannose, d-galactose, L-rhamnose), benzalkonium chloride, triclosan, iodine, and sulfur
 - not commonly used and have less effect include quaternary ammonium compounds and phenols (neither used in cats), alcohols or parabens
- 4) Antimycotic-disinfectants or antifungal agents such as chlorhexidine, sulfur, selenium sulfide, miconazole, phytosphingosine, and ketoconazole
 - 2% chlorhexidine and 2% miconazole-synergistic

Types of Medicated Topicals

- 4) Emollients and moisturizers in hypoallergenic shampoos
 - Ingredients that moisturize are fatty acids and lipids, phytosphingosine, urea, glycerin, colloidal oatmeal, and chitosanide
- 5) Antipruritic or anti-inflammatory-1% hydrocortisone, 0.01% fluocinolone, 2% diphenhydramine, 1% pramoxine, colloidal oatmeal, phytosphingosine, and moisturizers

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Topical Therapy Examples

- Rinses-mixing concentrated solutions or soluble powders made with water
- Lotions-liquid powder
 - Hydro-B 1020 (Burrow's Solution and Hydrocortisone) astringent and weak steroid
- Powders-pulverized organic or inorganic solids that applied to the skin in a thin layer
 - Ex. Neo-Predef-low for “hot spots”
 - Flea powders
 - Gold bond-helpful to dry out intertrigo
 - Enilconazole powder for ringworm

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Topical Therapy Examples

- Creams, Emulsions and Ointments-lubricate smooth skin that is roughened
 - Mupirocin
 - SSD cream
 - Ex. Steroid creams-triamcinolone

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Topical Therapy Examples

- Gels
 - Kerasolv-hyperkeratotic disease
- Liquid Aqueous and Organic Spot-Formulations
 - Dermoscent 6 EFAs Cat and Dog
 - Atop7



Topical Active Agents

- Astringents-Acetic acid, Silver nitrate, Aluminum acetate solution (Burrow's solution)
- Emollients and moisturizers-glycerin, propylene glycol, colloidal oatmeal
- Antiseborrheic-Benzoyl peroxide, Salic Acid
- Antipruritics-Pramoxine, Cool-Wet Dressing and steroids (talk about later)

Topical Antimicrobial Agents

- Alcohol: 70-90% bactericidal
 - Propylene glycol: 40-50% antibacterial and antifungal
 - Sodium hypochlorite and chloramines are effective bactericidal, fungicidal, sporicidal, and virucidal agents.
 - 1:10 or 1:20 dilution is well tolerated
 - Command shampoo-sodium hypochlorite, salicylic acid
 - Vetericyn-hypochlorous acid is a much stronger antimicrobial agent than sodium hypochlorite and much less toxic
 - Miconazole 1-2%: antifungal, some Staph bacteria, synergistic polymyxin B
 - Chlorhexidine 2-4%: phenol-related biguanide antiseptic and disinfectant that has excellent properties. It is highly effective against many fungi, viruses, and most bacteria, except perhaps some *Pseudomonas* and *Serratia* strains.
 - May be synergistic: miconazole, EDTA, phytosphingosine
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Topical Antimicrobial Agents

- Iodine-all around antimicrobial, but drying
- Acids-ex Acetic (vinegar 1/1 soaks) is antimicrobial, Boric is antifungal
- Nisin-antibacterial, Nisin wipes
- Benzoyl peroxide-antibacterial agent that has keratolytic, keratoplastic, antipruritic, degreasing, and follicular flushing action.
- Phytohyingosine-form of sphingolipids, has a sphingoid base and is very similar in structure to sphingosine and can have antimicrobial properties.

Topical Antimicrobial Agents

- Silver-antibacterial
- Glycoproteins- control infection and inflammation.
 - exogenous sugars (d-mannose, d-galactose, l-rhamnose and alkylpolyglucoside) that mimic the skin sugars found in the glycoproteins of epidermal keratinocytes.
 - Glycoproteins are important in cell-to-cell communication and serve as attractants to external pathogens (i.e., Staphylococcus, Pseudomonas, Malassezia) via lectin binding.
- Ethylene diamine tetra acetic acid tris (EDTA tris) is a chelating agent that has been used as a potent disinfectant, alkalinizing solution, and as an antibiotic potentiating agent.
 - affecting permeability of the outer membrane in Gram-negative bacteria by removing Ca^{2+} and Mg^{2+}
 - Synergistic with chlorhexidine

Now let's talk about using topical therapy treatments!

- What do you use in your clinic?
- What do you find works the best?
- What is the most tolerated?
- What has the highest client compliance?
- Anything you find works for your feline patients?



What do I
have in my
pharmacy?

What do I have in my pharmacy?



Maintenance Shampoo

- 1. Dechra Dermallay or Dermalyte
- 2. Virbac Allergroom
- 3. Virbac Epi Soothe
- 4. Douxo S3 CARE
- 5. Vetbiotek Aloe Oatmeal shampoo



Allergic Maintenance with mild erythema

- Virbac Allermyl-Piroctone Olamine
- Douxo S3 Calm-Ophytrium
- Vetbiotek BioCalm shampoo-Pramoxine



Maintenance Conditioner

- Virbac Epi Soothe
- Dechra Dermallay Spray Conditioner





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Antimicrobial shampoo

- 1. Douxo S3 Pyo
- 2. Dechra Micohanex
- 3. Virbac KetoChlor
- 4. Dechra TrisChlor4
- 5. Dechra Malaseb
- 6. VetBiotek Biohex
- 7. VetBiotek Hexaderm



Specific Antimicrobial Shampoos

- Resistant infections
- Chlorhexidine 4%-MRSP
- Command shampoo-Alternate with 4% Chlorhexidine
- Benzoyl peroxide by Dechra-Greasy, Follicular Casts, Demodex cases and Schnauzer Comedone Syndrome



Chlorhexidine Allergy

- 1. Command
- 2. Douxo S3 Seborrhea
- 3. Virbac Keratolux
- 4. Vetbiotek BioSeb





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Antipruritic Spray

- Betagen Spray-Not recommended
- Genesis Spray-Only preferred
- Cortavance-Not in the US

Antimicrobial Sprays

- Miconahex + Triz
- Douxo S3 Pyo
- Vetbiotek Hexaderm



Antimicrobial Mousse

- Miconahex
- Douxo S3 Seborrhea
- Douxo S3 Pyo
- Vetbiotek BioSeb
- Vetbiotek BioHex



Anti-inflammatory Mouse

- Douxo S3 Calm
- Vetbiotek Calm





Antimicrobial wipes

- Malacetic wipes
- Miconahex wipes
- TrisChlor4 wipes
- Malaket wipe
- Keto hex wipes
- Douxo Pyo wipes



VetOne Products?

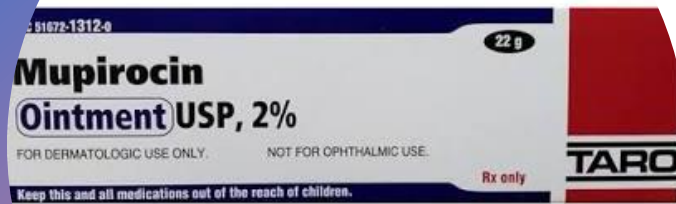
- I like their wipes, but don't know a lot about the brand.
- Good odor
- Vetraseb HC, P
- Vetraseb Ceraderm CK, CM, C 4%
- Ketohehex shampoo, wipes, ear cleaner
- Oatmeal shampoo
- MWI owns them.

Topical Antibiotics



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- 1. Mupirocin
- 2. SSD Cream
- 3. NO ANIMAX IN ANY FORM



Ear Topicals

- 1. Treatment flush is Tris EDTA or T8 Keto, Triz-EDTA+ Keto
- 2. Maintenance favorites Douxo Micellar vs Epi Otic Advanced
 - Malaket or Malacetic are good too!
 - Zymox has good ear cleaners, but not with chronic infections



Topical Antifungals

1. Miconazole or
Clotrimazole lotion
1%

2. M/C Cream 1% only
certain areas-vulvar
or rectum, monitor
for any reactions

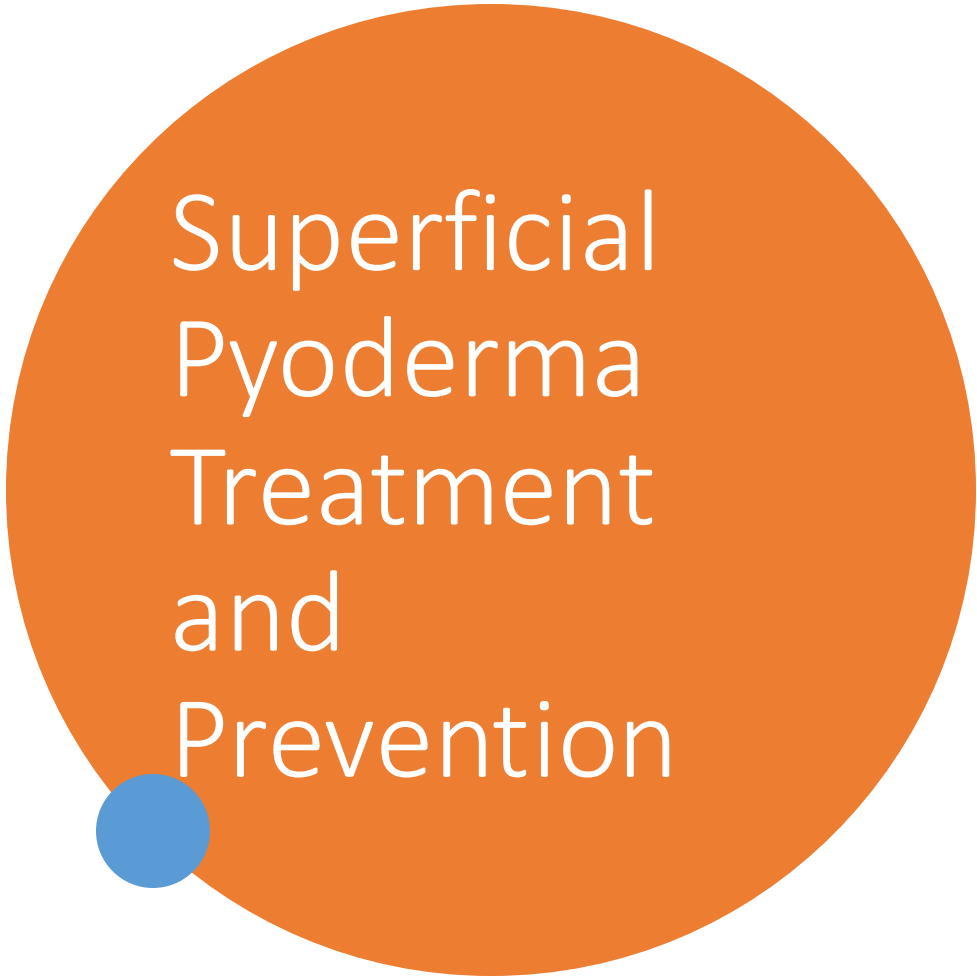
Supplements

- 1. Fatty acids- Wellactin, Bayer Snip Tips, Dechra, Nordic Naturals
- 2. Dermoquinn by Nutramax-ceramides, hardy kiwi, has research, dog and cats
- 3. Redonyl Ultra-helps skin barrier, reduce pruritus, has research dog and cats



Topical Immune Medications

1. Tacrolimus 0.1% for autoimmune and focal allergic use more in humans.



Superficial Pyoderma Treatment and Prevention

- Cytology everything!
- Focal treatment: Topical chlorhexidine wipes, mousse and I use less spray
- Depends on location and type of animal.
- Multifocal: Bathing is ideal with a systemic antibiotic.

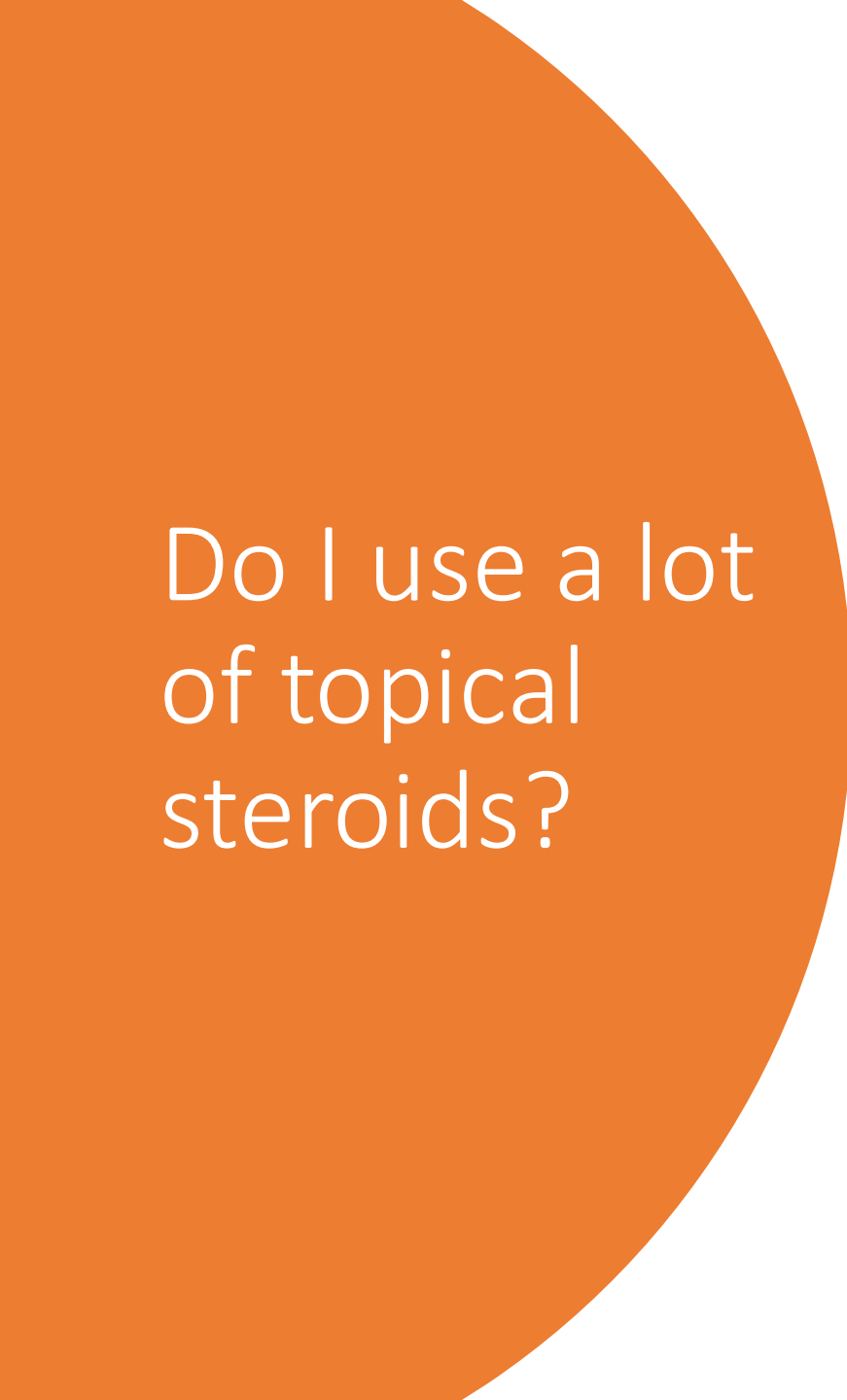
MRSP Treatment and Prevention

- 1:3 of my patients have MRSP, I culture almost ½ my patients now
- Focal treatment mupirocin or SSD cream.
- Focal: chlorhexidine wipes or for eyes Tris Ophtho wipes
- Diffuse with yeast: 2:2
- Severe MRSP patient: Command shampoo or 4% chlorhexidine
- Dilute bleach 1:10 bathing

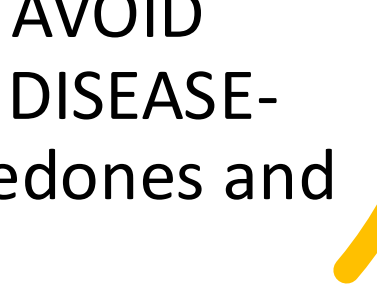


Yeast Dermatitis Treatment and Prevention

- Vinegar/Water 50/50% soaks
- Azole wipes, spray, mousse or shampoos
- Focal areas miconazole or clotrimazole lotion or cream
- Best way to diagnose is tape cytology
- To start treatment: I start with daily oral treatment and sometimes pulse therapy 2x weekly:
 - Azole 5 mg/kg SID or terbinafine 30 mg/kg SID



Do I use a lot
of topical
steroids?

- Yes, you will see me add steroid (dexamethasone 4 mg/ml) to my ear cleaners and sometimes topical wipes.
 - Focal lesions of “Interdigital Cysts” Nodular Pododermatitis-applied topically to shrink
 - Autoimmune condition-SLE, DLE, Pemphigus
 - Topical sprays-only pure steroid and no mixed antibiotic
 - **NEED TO USE WITH CAUTION TO AVOID FOCAL (IATROGENIC) CUSHING’S DISEASE-** hair thinning, skin thinning, comedones and CC plaques.
- 



Topicals for Cats?

- Depends on their demeanor.
- Our naked cats (Sphynx or Devon Rex) do like bathing!
- Can make cats focus on an area.
- No direct sprays. Spray on cotton and wipe.
- Mousse for scaling cats.
- They do tolerate wipes.

Topical Additives



- Dermoscent Atop7 spot on, mousse, shampoo, wipes, etc.
- A veterinary study* on 28 dogs was able to highlight the interest of applying ATOP 7[®] spot-on to help soothe atopy-prone skin.
- 16 atopic dogs received ATOP 7[®] spot-on and ATOP 7[®] Shampoo once a week for a month in addition to their drug treatments while 12 atopic dogs continued their drug treatment without any additional care.
- The effects of ATOP 7[®] were demonstrated in comparison to the group without topical care (from their website)
- Ingredients-Phytoceramides, Vegetable oil, Synergy Essential Oils



Topical Additives

- Dermoscent 6 Essential Fatty Acids-EFA and moisturize
- Dermoscent Pyo-help with microbiota
- Virbac Allerderm topical is back.

Sebaceous Adenitis

- 1. Keratolux Shampoo or Douxo Seborrhea Shampoo or Vetbiotek Bioseb: Bathe 2x monthly until doing well and then 1x monthly. Let sit for 5-10 minutes before rinsing. No scrubbing.
- 2. DermAllay Spray Conditioner and Propylene glycol 70%: Spray affected areas twice weekly. Buy a 1 liter spray bottle. Dump in bottle dermallay conditioner and add propylene glycol to make 70% mixture. The Dermallay is sometimes hard to open, so can just keep that spray 3x weekly and follow with a 70% propylene glycol, add water 2/3 glycol and 1/3 water and spray 3x weekly after. If doing well can reduce to 1x weekly.
- 3. Douxo Seborrhea Mousse or Vetbiotek Bioseb mousse: apply 1x daily to any lesion until gone.
- 4. Oral Fish Oils: Snip tips, Dechra, Wellactin, Nordic Naturals.
- 5. Dermoscent topical fatty acids: Apply as directed weekly.
- 6. Can always consider baby oil soaks for 1x weekly and then clean with Dawn and then shampoo.
- 7. Can also use Virbac Epi Soothe or Dechra Dermallay Shampoo and Conditioner as well.

Calcinosis Cutis Cases

- Chlorhexidine shampoo and Mousse
- DMSO roll on
- Treat any infections ideally based on culture with systemic meds.





Barrier Function Foods

Hills Derm Complete-
egg protein, help skin
barrier and reduce
mild pruritus

Purina DRM-fatty
acids

Royal Canin Skintopic-
B-glucans, licorice
root help skin barrier

WACVD Boston 2024 Updates



Nothing really...



We do have Zenrelia.



There is an unnamed
monoclonal antibody for dogs
again coming out by Dechra (IL
31 and IL-4).



Generic Apoquel



Nothing for cats I have heard of
right now. :(

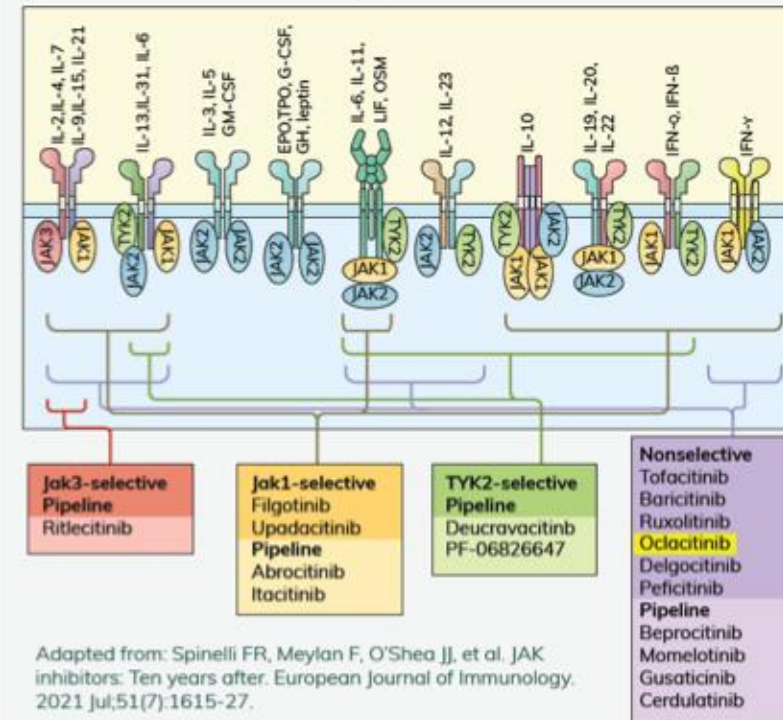
Zenrelia

PM-US-24-1331

Zenrelia and Apoquel are both first-generation, non-selective JAK inhibitors¹

- Pro-inflammatory and pruritogenic cytokines bind to cell receptors that utilize combinations of 4 different JAK enzymes to transmit signals²
- JAK enzymes work in combinations so have many overlapping functions
- Apoquel: primarily JAK1 & JAK3³
- Zenrelia: primarily JAK1, JAK2 & TYK2⁴
- In vitro* laboratory assays don't predict clinical efficacy and safety, so **head-to-head clinical trials remain the gold standard for comparison**⁵⁻⁷

Overview of JAK inhibitors for autoimmune, inflammatory and allergic diseases in human and veterinary medicine



1. Spinelli FR, Meylan F, O'Shea JJ, et al. JAK inhibitors: Ten years after. *European Journal of Immunology*. 2021 Jul;51(7):1615-27. 2. Gonzales AJ, Bowman JW, Fici GJ. Oclacitinib (APOQUEL®) is a novel Janus kinase inhibitor with activity against cytokines involved in allergy. *Journal of veterinary pharmacology and therapeutics*. 2014 Aug;37(4):317-24. 3. Apoquel Package Insert. 4. Zenrelia Package Insert. 5. Bonelli M, Kerschbaumer A, Kastrati K, et al. Selectivity, efficacy and safety of JAKinibs: new evidence for a still evolving story. *Annals of the Rheumatic Diseases*. 2024 Feb 1;83(2):139-60. 6. Choy EH. Clinical significance of Janus Kinase inhibitor selectivity. *Rheumatology*. 2019 Jun 1;58(6):953-62. 7. Virtanen A, Palmroth M, Liukkonen S, et al. Differences in JAK Isoform Selectivity Among Different Types of JAK Inhibitors Evaluated for Rheumatic Diseases Through In Vitro Profiling. *Arthritis & Rheumatology*. 2023 Nov;75(11):2054-61.

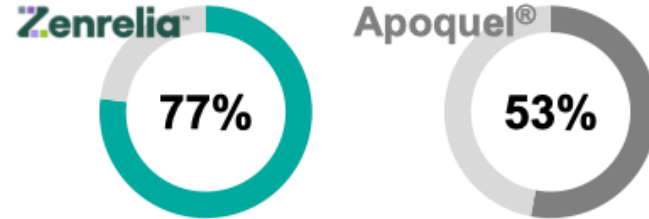
Zenrelia
(ilumocitinib tablets)

Zenrelia

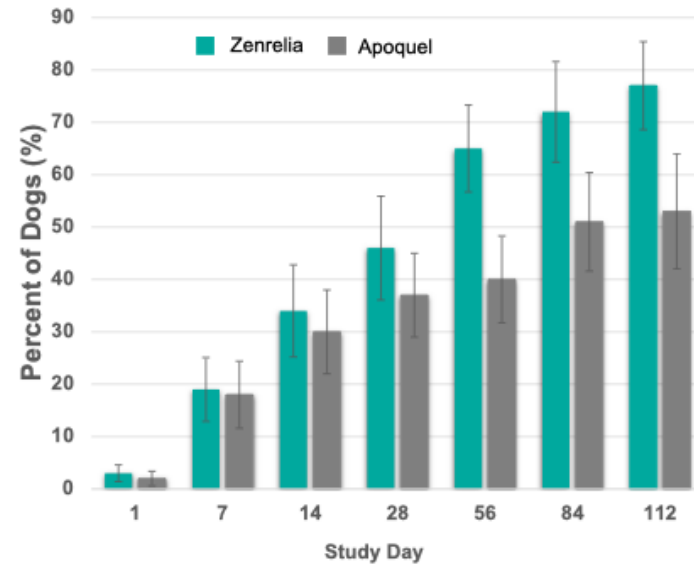
PM-US-24-1331

Head-to-Head Clinical Trial: Zenrelia and Apoquel® Additional Outcomes

Proportion of dogs with PVAS <2 on Day 112



Proportion of dogs with PVAS <2 over time



Zenrelia was as effective as Apoquel at the primary study endpoint (Day 28). Additional endpoints are not adjusted for multiple testing; therefore, caution should be exercised in interpretation.

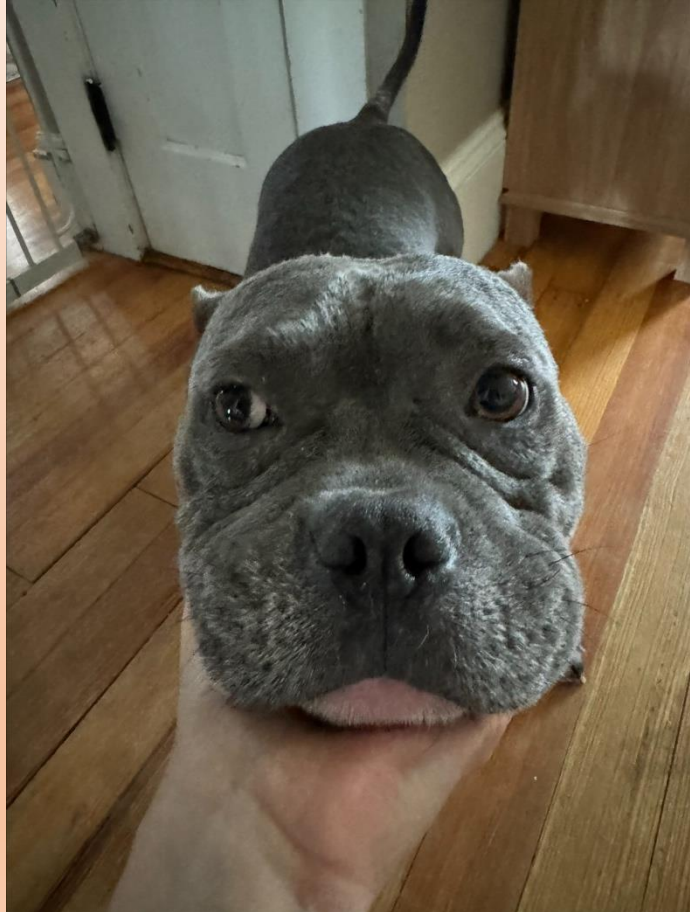
Elanco Animal Health. Data on File.

Zenrelia
(ilunocitinib tablets)

Side Effects and Risk Questions?

- Talk to Elanco
- Melinda Engstrom, DVM, DACVIM
melinda.engstrom@elancoah.com
- Edward Pawlowski
EDWARD.PAWLOWSKI@elancoah.com>

Zenrelia update



Zenrelia Update



Zenrelia



Zenrelia





Question?

- What medication is synergistic with chlorhexidine?
- 1) Miconazole
- 2) Salicylic acid
- 3) Mupirocin
- 4) Colloidal oatmeal



Any Questions?



- Ask anything!
- Email: dermatology@capecodvetspecialists.com

Thank You!



- Thank you to anyone willing to listen to me for an hour
- Thanks to all the local GPs, techs, groomers and receptionists.
- Thank you my to job at CCVS and hopefully a new space to work next year.
- Thank you to my techs Jenna and Amanda, our manager Chloe and Brianna the liaison.





References

- 1. Dermatology Edition 7th.
 - 2. Elanco Slides Zenrelia
 - 3. Dr. Ashley Bourgeois “The Derm Vet” Podcast
 - 4. Elanco for Zenrelia slides
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Notice

- CE credit certificates & presentation slides will be emailed to you. If you do not receive an email with this information within a week, contact Nichole - nicholemanfredi@capecodvetspecialists.com

