

# Cold plasma is a promising new adjunctive therapy option for treating SCCEDs in often treatment-refractory French Bulldogs.



## Argon cold atmospheric plasma treatment shortens healing time of spontaneous chronic corneal epithelial defects in French Bulldogs

### PURPOSE

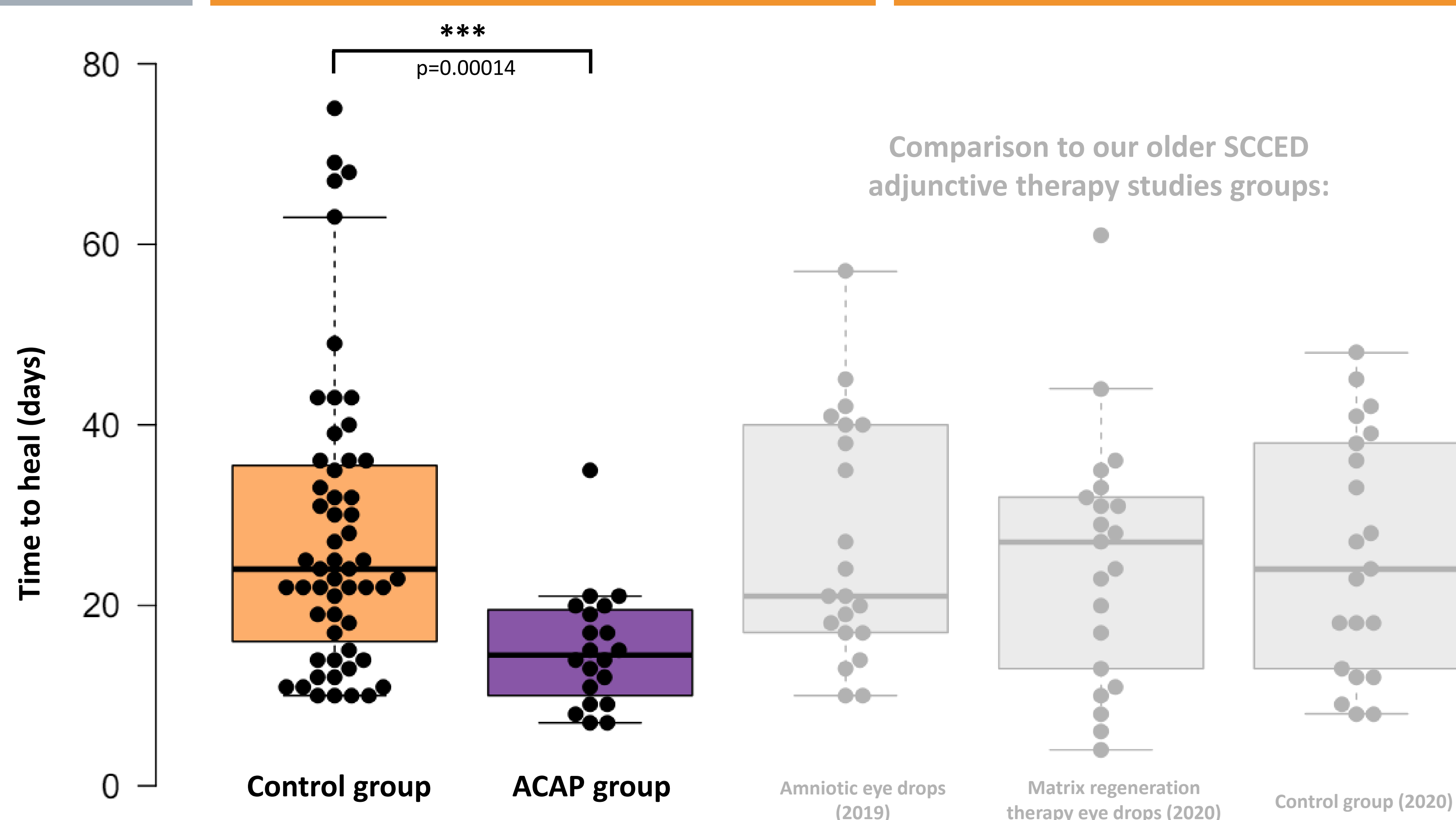
- To evaluate adjunctive argon cold atmospheric plasma (ACAP) treatment on healing time of spontaneous chronic corneal epithelial defects (SCCEDs) in French Bulldogs.

### METHODS

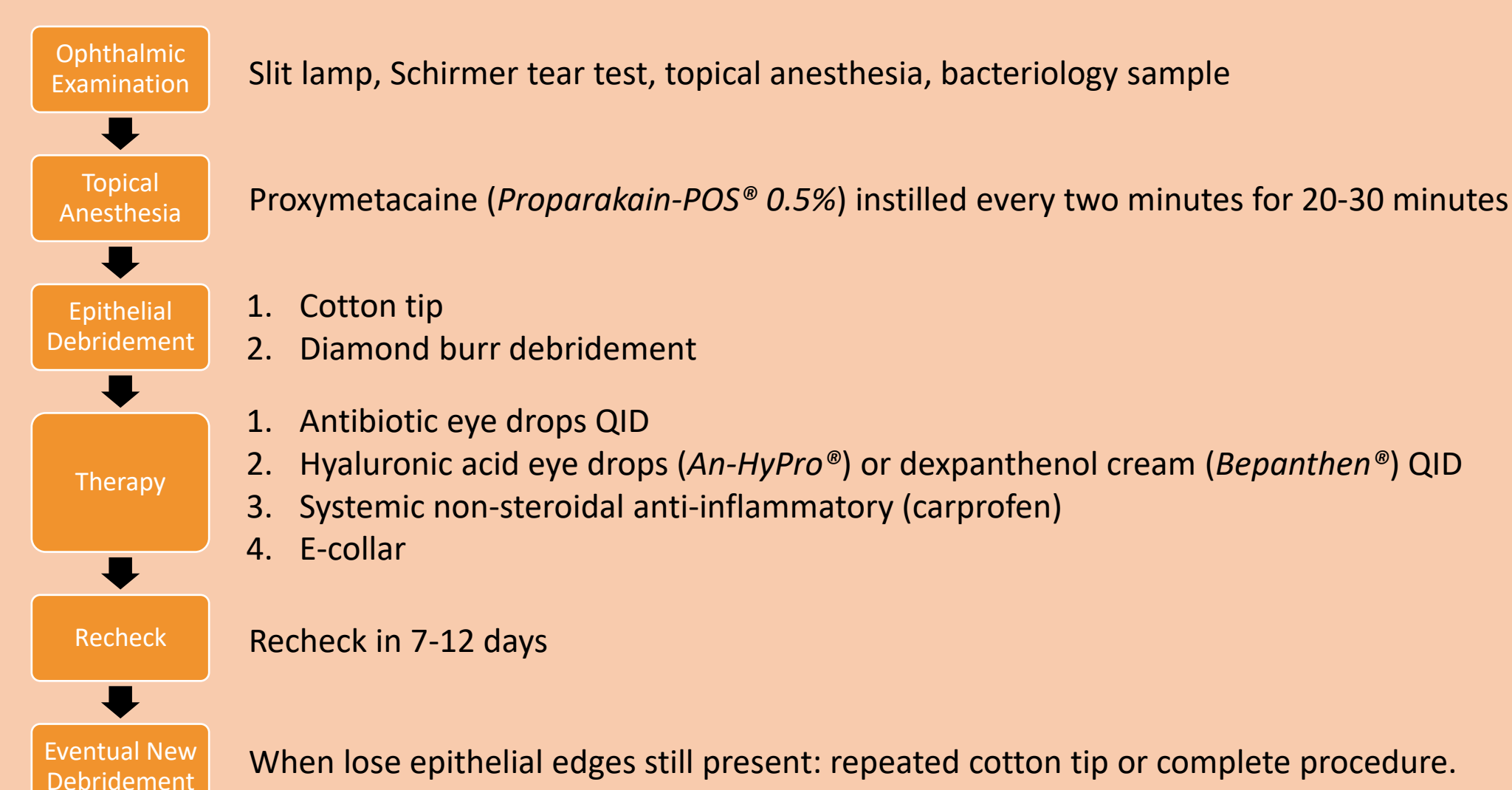
- Comparison of ACAP and control groups in unilateral and bilateral French Bulldog SCCEDs
- Control group** = standard of care treatment (see on the right)
- ACAP group** = standard of care treatment + **ACAP therapy every 2-6 days**
- Application of plasma stream in meandric movement over lesion for 30-60s (60s  $\approx$  1 cm<sup>2</sup>)
- kinPEN-VET® (Neoplas GmbH, Greifswald, Germany)

### RESULTS

	Control group	ACAP treatment group
Number	54 dogs (58 eyes)	19 dogs (22 eyes)
Age (median)	7.8 years (5.0-11.9)	7.8 years (6.0-9.8)
Tear film disorder	50% (29/58)	59% (13/22)
Time to heal (mean)	28.1 $\pm$ 16.10 days	15.2 $\pm$ 6.42 days
Time to heal (median)	14.5 days (7-35)	24.0 days (10-75)
Reassessments (median)	2 reassessments (1-6)	4 reassessments (2-7)
ACAPs sessions (median)	---	4 treatments (2-6)
Complications	2x keratomalacia, 1x stromal infiltrate	1x keratomalacia, 1x stromal infiltrate*

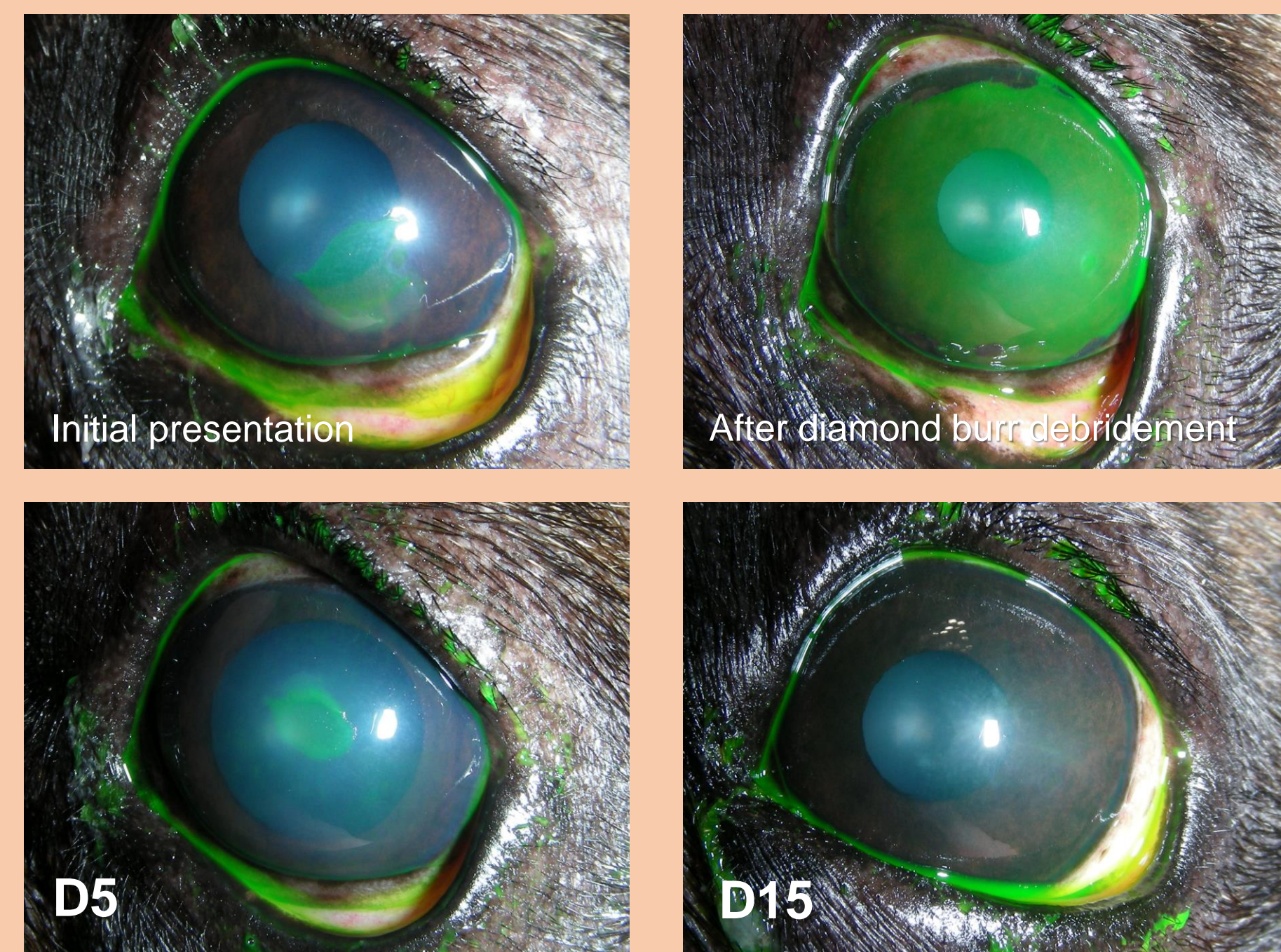


### SCCED: Standard of care treatment (our practice)



### Therapy example: Hilde

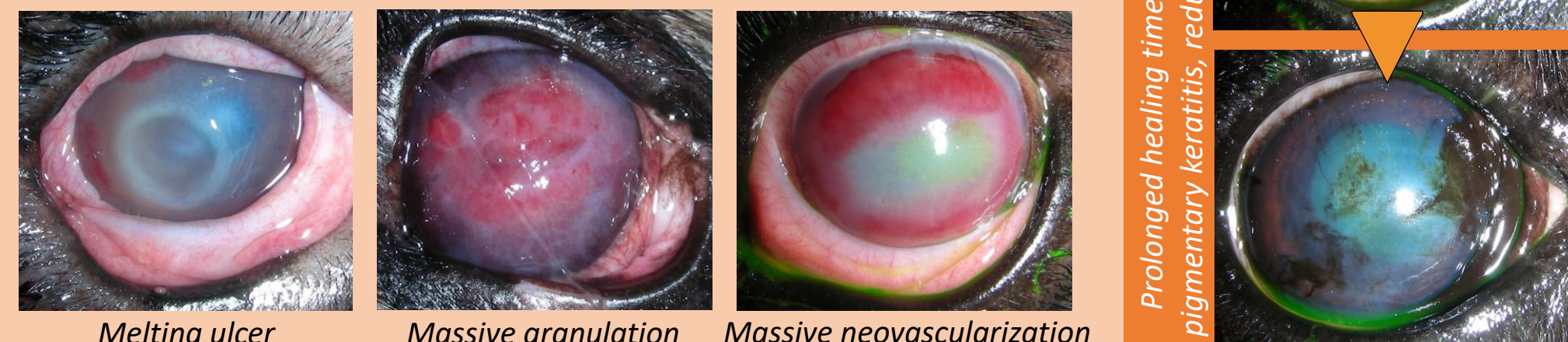
- 8 year-old French Bulldog, **Cold plasma add-on treatment**: 3 treatments
- Medical therapy with topical antibiotics, hyaluronic acid, systemic NSAIDs



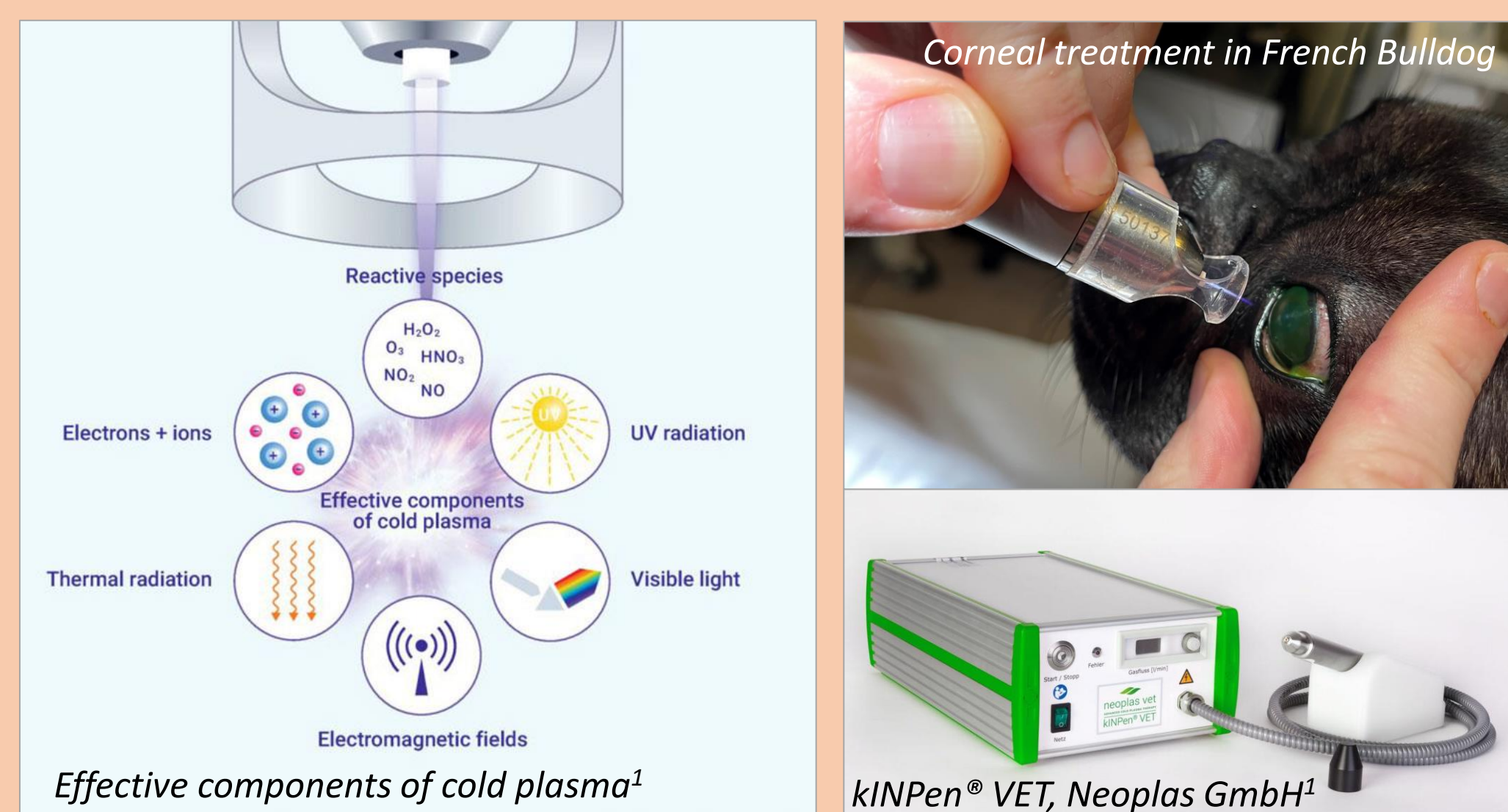
### Frenchies and SCCEDs: Why the fuss?

- SCCEDs in French Bulldogs (FB) remain therapeutical challenge in terms of healing time as well as long term corneal clarity outcome. There is an acute unmet medical need for new ways of SCCED treatment in FBs.
- Most common breed presented to our practice.<sup>2</sup>
- Most common breed with SCCED in our practice.
- Minimal to no information on SCCEDs in FB available in literature (*Dees et al. 2016*)<sup>3</sup>

#### SCCED Complications in Frenchies:



### Argon cold atmospheric plasma



Literature/sources: [1] <https://www.neoplas-vet.com/kinpenvet/>  
[2] Allgoewer I: Ocular disorders of 809 French Bulldogs (2019), Abstracts: Annual Scientific Meeting of the ECVO, Antwerp, Belgium May 23–26, 2019. Vet Ophthalmol. 2019;17(6):E1-E27. 10.1111/vop.12702  
[3] Dees DD, Fritz KJ, Wagner I, Paglia D, Knollinger AM, Madsen R. Effect of bandage contact lens wear and postoperative medical therapies on corneal healing rate after diamond burr debridement in dogs. Veterinary Ophthalmology. 2017;20:382-9.

**\* Do not miss our second poster on feasibility, safety and tolerability of cold plasma treatment!**

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