

# Versikor<sup>500®</sup> supplementation in palliative care of companion dogs suffering from malignant evolutive solid tumors

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## Introduction



PSP: polysaccharopeptide extracted from Cov-1 strain of *Coriolus Versicolor* spawn.

### In human

- Used in traditional chinese medicine and in human clinical practice in Asia as adjuvant in anti-cancer treatment
- Known as immunomodulator : ↑ IFNy / IL-2 / TNFα (Lee, 2006; Sekhon, 2013; Hsieh, 2002)
- Decreases the paraneoplastic effects and adverse reactions of chemotherapy in human (Liu, 1993)

### In dog

- Delays abdominal metastasis progression at 100 mg/kg/day
- Prolongs median survival time at 100 mg/kg/day : 199 days
- Shows no adverse effects due to treatment administration
- To date, only 1 published study on 15 dogs with resected splenic hemangiosarcoma (Brown, 2012)

Versikor<sup>500®</sup> is a food supplement enriched in PSP (>38% polysaccharides, >11,5% peptides) dedicated to dogs and cats

## Aim of the study

### Primary objective:

- Evaluate the immunomodulatory effect of Versikor<sup>500®</sup> on dogs suffering from solid malignant tumors

### Secondary objectives:

- Evaluate the impact of Versikor<sup>500®</sup> on dog quality of life suffering from cancer and on its owner quality of life
- Confirm the safety of Versikor<sup>500®</sup> administration on dogs suffering from cancer

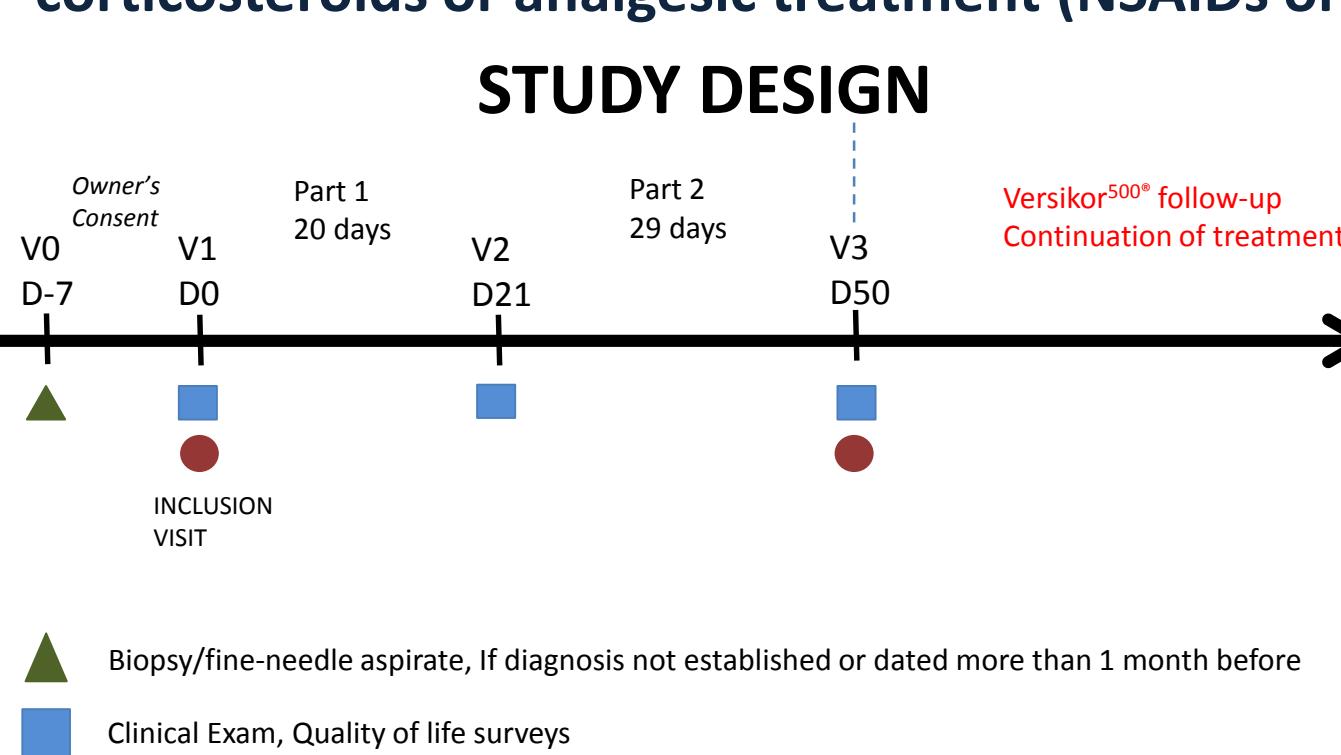
### Exploratory objective:

- Evaluate the overall survival of dog receiving Versikor<sup>500®</sup>

## Materials and methods

### EXPERIMENTAL DESIGN

- Multicentric non-comparative study (12 investigation sites in France and Belgium)
  - 22 dogs suffering from malignant evolutive solid tumors (cytologically or histologically confirmed)
  - Owners that refused surgery of the primary tumor or any adjuvant treatment of residual disease (radiotherapy or chemotherapy)
  - Dogs not treated with immunosuppressive or analgesics treatments\*
- \* During the study, if required by the clinical status of a dog, maximum 5 days of corticosteroids or analgesic treatment (NSAIDs or Tramadol) was allowed



Complete Blood Count and Biochemistry parameters evaluation were performed by a central laboratory (Vebio, France). Cytokines assessment was performed in two batches using Luminex technology by the central laboratory.

## Study Population

22 dogs included in the study

8 Males/ 14 Females

12 neutered / 10 not-neutered

Mean age: 10,7 years old (6-16)

Mean body weight (at V0): 23,5 kg (5,9-52)

16 dogs completed 50 days of study duration

Treatment compliance: Mean 98,3%

### Tumor types:

- 13 Sarcomas (59%): various types, from very aggressive (1 osteosarcoma, 3 hemangiosarcomas, 1 histiocytic sarcoma) to low grade soft tissue sarcomas
  - 4 Mammary carcinomas (18,2%): 2 tumors with grade 3 and 2 tumors with metastasis
  - 3 Melanomas (13,7%): 2 oral and 1 nail bed
  - 2 Mastocytomas (9,1%): grade 2
- 50% without surgery of the primary tumor  
50% cases underwent surgery (22,7% had metastasis and 27,3% had residual disease)

## Acknowledgment

We would like to thank especially pet owners and investigators who actively participated in the case enrolment process for this study.

Versikor<sup>500®</sup> is still freely provided to study participants that are alive, if investigator and pet owner want to continue the treatment.

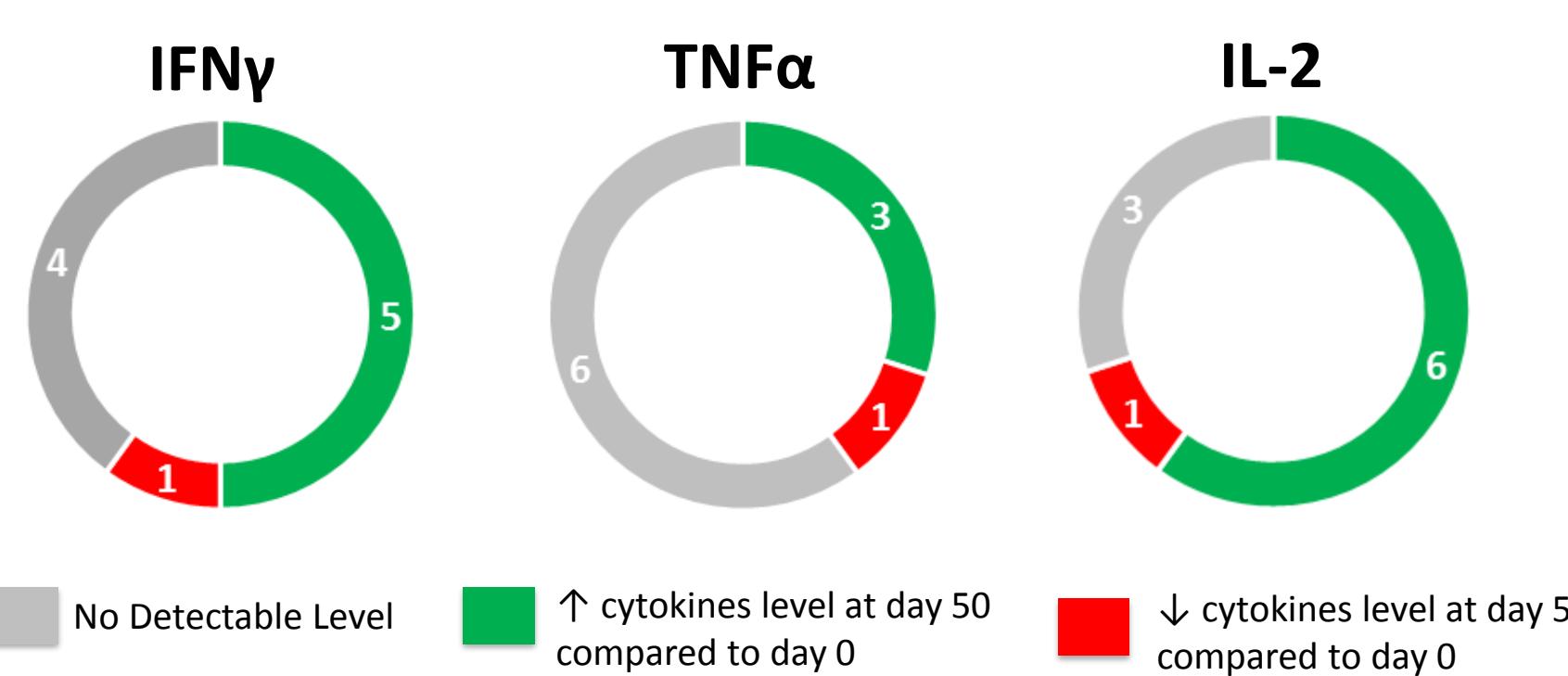
## Results

### IMMUNOMODULATORY EFFECT

Analyses of immunomodulatory effect of Versikor<sup>500®</sup> were realized on the dogs which received the treatment for the entire study period and did not receive concomitant treatment which could affect immune response.

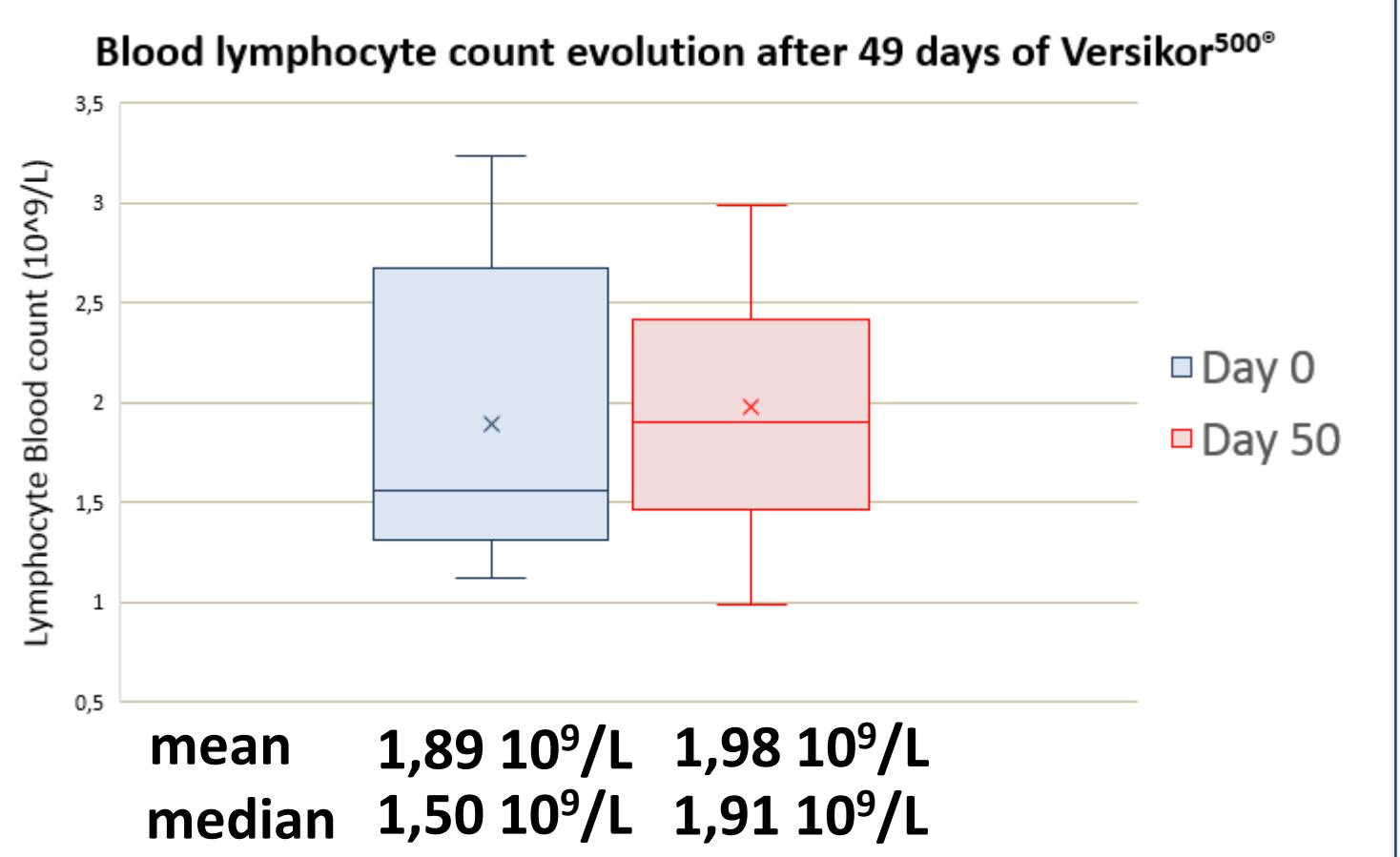
Population of analysis : 10 dogs

#### PSP INCREASES PRO-INFLAMMATORY CYTOKINES SERUM CONCENTRATION



If we restrict the analysis to dogs with only detectable level of cytokines in serum, respectively 83%, 75% and 85% of dogs have shown increased level of IFNy, TNFα and IL-2 in serum after 49 days of Versikor<sup>500®</sup> treatment.

#### MAINTENANCE OF LYMPHOCYTES BLOOD COUNT

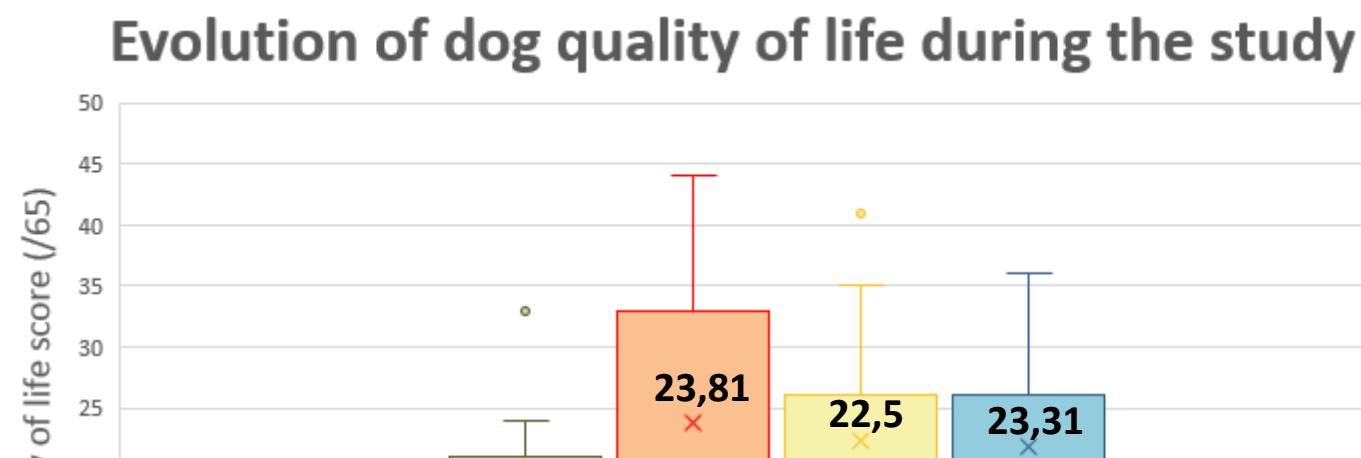


### DOG QUALITY OF LIFE

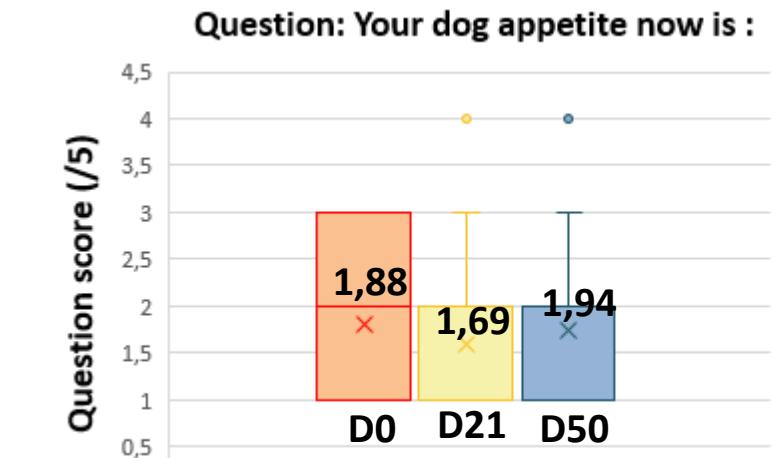
Analysis of dog quality of life was performed on dogs which received the treatment for the entire study period.

Decrease of quality of life score = improvement of dog quality of life

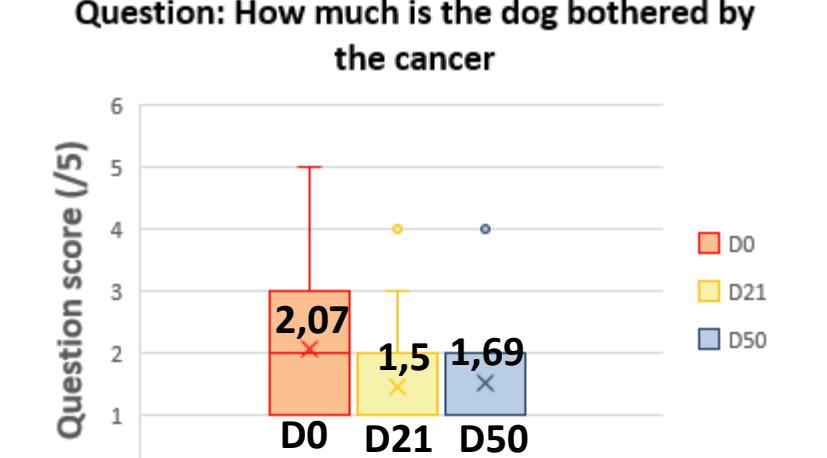
Population of analysis : 16 dogs



#### Maintenance of dog quality of life during the study duration



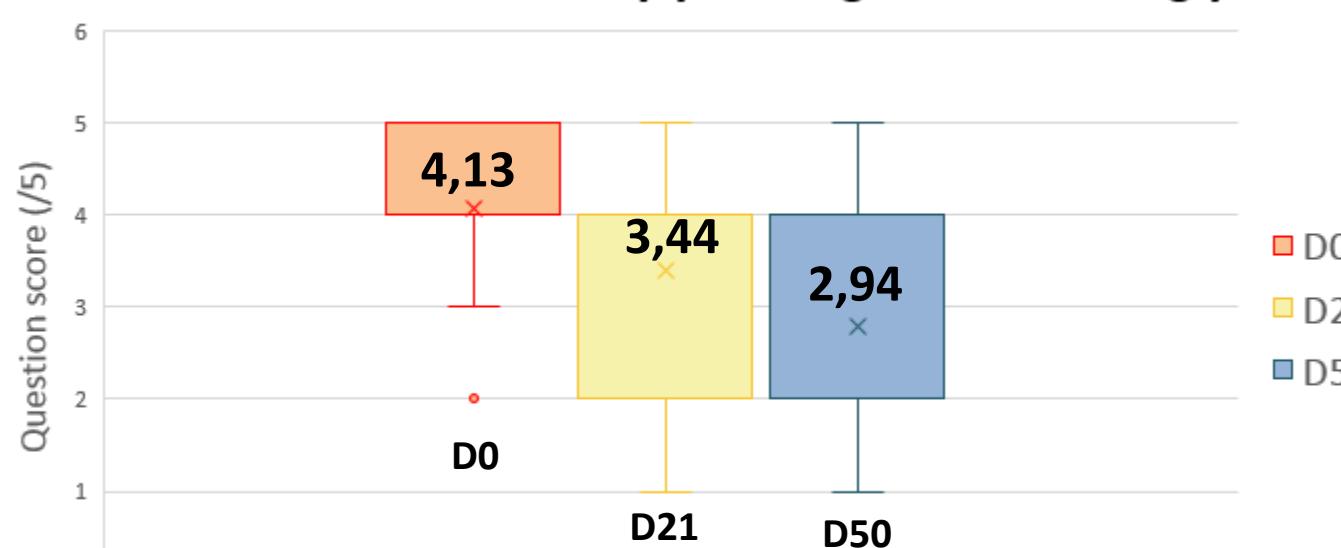
Maintenance of dog appetite during the 50 days of treatment



Dogs are significantly less bothered by the cancer after 21 days of treatment compared to inclusion visit ( $Pv=0,02$ )

### OWNER ANXIETY ABOUT DOG ILLNESS

#### Rate the amount of worry your dog illness causing you :



Significant decrease of owner anxiety about dog illness after 21 ( $Pv=0,02$ ) and 50 days ( $Pv=0,005$ ) of Versikor<sup>500®</sup> treatment.

### SAFETY EVALUATION

- No difference in biochemical and haematological parameters
- No adverse events related or possibly related to the treatment
- Body weight / Rectal temperature stable during the study

### 5 SELECTED CASES WITH PROLONGED SURVIVAL

- 1 dog with appendicular osteosarcoma - 124 days of survival without amputation, euthanized due to severe pain (median survival time for OSA with amputation ≈133 days/ Spodnick GJ et al, 1992)
- 1 dog with sub-cutaneous hemangiosarcoma (uncomplete exeresis) - 338 days of survival on Versikor<sup>500®</sup>, natural dead (median survival time with or without cancer treatments is 172 days/ Shiu KB et al, 2011)
- 1 dog with mammary adenocarcinoma with hepatic metastasis and pancreatitis - 180 days of survival, euthanized due to disease progression
- 1 dog with nail bed melanoma after surgery of the primary tumor with loco-regional lymph node metastasis - 308 days of survival, still alive, in good health condition and still on Versikor<sup>500®</sup>
- 1 dog with multiple grade 2 mastocytoma 225 days of survival, still alive and on Versikor<sup>500®</sup>

## Conclusion

- The majority of dogs with assessable cytokines level, showed an increase of IFNy, IL-2 and TNFα serum concentration after 49 days of Versikor<sup>500®</sup> treatment.
- IL-2 is used in human medicine for its anti-tumoral effect, especially in kidney cancer with metastasis. The treatment is currently limited due to adverse effects of intravenous injection of this cytokine.
- Enrolled dogs maintained their quality of life during 50 days of study with preservation of appetite. Pet owners were less anxious by their dog illness.
- No adverse events were reported related to Versikor<sup>500®</sup> administration.
- Some cases presented prolonged survival

To sum up, Versikor<sup>500®</sup> stimulates canine immune system and can be of added value in palliative care for various types of cancer.

PSP is currently used as adjuvant to other anti-cancer treatments in human and demonstrates its ability to decrease their side effects and to maintain patients quality of life. Giving this effect, additional study with Versikor<sup>500</sup> as adjuvant treatment would be of a major interest in dogs.

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