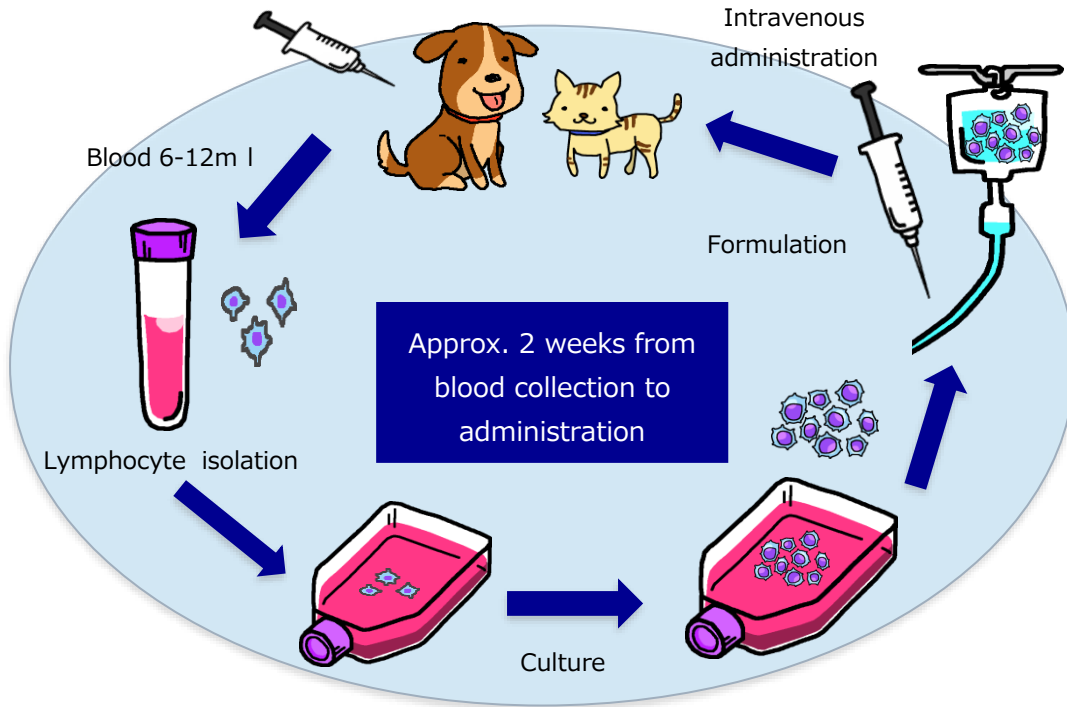


# Culture kit for activated lymphocytes (CAT)

The Activated Lymphocyte Culture Kit is a kit for convenient culture of activated lymphocytes from canine and feline peripheral blood.



## Forte

- Possible in a simple clean room**
  - No special equipment or strict environment required
- All-in-one**
  - All aspects of culture can be done with just the kit
- Disposable**
  - No contamination by reuse



Can be prepared in-house at a general hospital

Minimally invasive with only an intravenous infusion

Leading the way, unparalleled in the U.S. and abroad

## Composition

This all-in-one culture kit includes everything necessary for a single treatment from culture to administration, including culture bag, culture medium, and pipettes.

## Application Examples

Using our activated lymphocyte culture kit, we cultured canine peripheral blood. In the obtained cultured cells, gene expression levels of IFN- $\gamma$ , which enhances the ability to attack cancer cells, and proenkephalin, an opioid that exerts analgesic effects, increased 3.5- and 2.7-fold, respectively, compared to those before culture (Figure 1). In addition, when these cultured cells were cultured together with cancer cells, most of the cancer cells were killed (Figure 2). These results indicate that opioid production from the proliferating cells as well as IFN- $\gamma$  production increased and their ability to kill cancer cells increased.

Fig. 1. Gene expression levels in activated lymphocytes

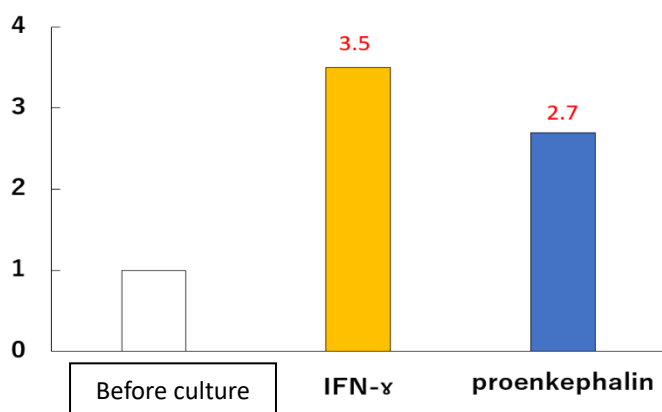
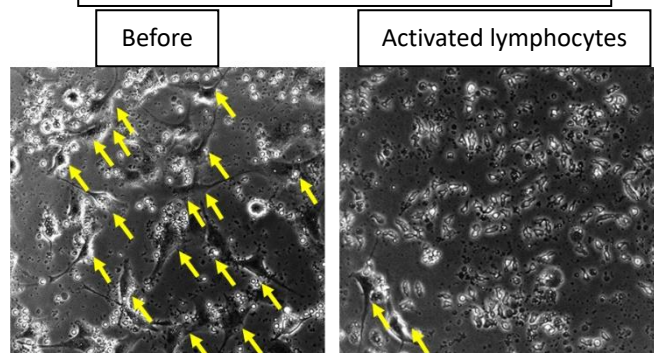


Fig. 2. Tumor-killing activity for cancer cells



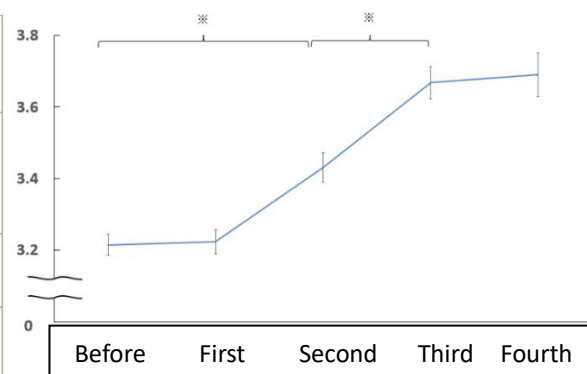
( Left: Spindle-shaped cancer cells (yellow arrows) proliferate; Right: Cancer cells die)

The CHQLS-15 (Figure 3) reported by Lavan (2013) was used to assess quality of life in 74 tumor-affected dogs treated with activated lymphocyte therapy. The average pre-treatment score was 3.0. The average score before treatment was 3.2, but it increased with each administration, reaching 3.6 at the sixth administration (Figure 4). These results indicate that activated lymphocyte therapy for dogs with tumors improved QOL and that QOL can be quantified and evaluated objectively.

Fig. 3. CHQLS-15

1	Happiness	My pet wants to play	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet responds to my presence	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet enjoys life	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet has more good days than bad days	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2	Physical functioning	My pet sleeps more, is less awake	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet is in pain	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet moves normally	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet lays in one place all day long	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3	Hygiene	My pet is as active as he/she has been	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet keeps him/herself clean	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet smells like urine or has skin irritation	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4	Mental status	My pet's hair is greasy, matted, rough looking	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet seems dull or depressed, not alert	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet pants frequently, even at rest	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
		My pet shakes or trembles occasionally	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Fig. 4. Average QOL per item



## Literature and Presentations

- 1) Mitani K, Ito Y, Takene Y, Hatoya S, Sugiura K, Inaba T. Quality of life-improving effect of autologous ex vivo expanded cytotoxic and opioid-producing lymphocytes for dogs with cancers. *Vet. Immunol. Immunopathol.* 2021.
- 2) Mitani K, Ito Y, Takene K, Inaba T, Sugiura K. Isolation of opioid-producing cells by canine activated lymphocyte culture kit and analysis of its clinical application results. Japanese Society for Veterinary Regenerative Medicine 15th Annual Meeting 2020.
- 3) Tohya S, Mitani K, Ito Y, Inaba T, Okada K. (J-ARM Inc.), QOL evaluation by owners in canine cancer immunotherapy and fat stem cell therapy, 160th Annual Meeting of the Japanese Society of Veterinary Science 2017.

J-ARM Corporation

5-9-27-201 Abenosuji, Abeno-ku, Osaka-shi, Osaka

TEL&FAX : 06-7890-5959 order@j-arm.com