“LIGFOL, GUMIVAL - increase of resistance, rehabilitation and preservation of animals’ health”
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DESCRIPTION OF THE PREPARATION

Ligfol active principle contains humic substances received by hydrolysis of natural (wood) lignine. Besides, it contains natrium pyrophosphate decahydrate, natrium chloride and demineralized water.

The preparation is liquid of dark-brown color, with a faint specific smell.

Ligfol for small domestic animals is released sterile, packaged in small glass bottles with capacity of 1.0 ml.

The preparation must be stored in dry places protected from light, at temperature 18-20°C.

Keeping time is 2 years from the date of manufacture.

Ligfol possesses adaptogenic, stress-correcting activity, shows properties of antioxidant, modulator of immunologic parameters of resistance, is hepatoprotector and anticancer drug. Ligfol raises resistance of the organism against adverse influences, helps to preserve health and forwards productivity of animals.

In the basis of Ligfol’s action lay immunoantioxidant mechanisms including antiradical activity, mobilization of phagocytes, activation of antioxidant protection and immunocompetent organs.

Ligfol is a low-toxic preparation. LD50 at intramuscular introduction makes 930 mg/kg at a range of therapeutic dozes from 0.5 up to 15 mg/kg. It does not possess pyrogenic, allergenic, teratogenic and embryotoxic action.
SUMMARY OF CLINICALLY IMPORTANT DATA

Main pharmacological properties of Ligfol are antineoplastic action, improvement of regeneration processes, immunostimulating and adaptogenic action. Efficiency of Ligfol is confirmed by clinical tests done on a plenty of small domestic animals (cats, dogs, porpoises, rats, mice, etc.), exotic animals (crocodiles, turtles, etc.) and birds (parrots). One of the preparation’s features is its ability to prolonged action at unitary intramuscular introduction that is determined by a long finding of humic substances’ molecules in muscular tissue and, accordingly, their gradual entering into blood flow.

Original formulation of Ligfol, and namely availability of humic substances of various molecular weight in its structure, causes display of expressed antioxidant, immune-response modulating and adaptogenic properties, which condition its mechanism of action, raising tolerance of an organism to various adverse influences, protecting it from illnesses and promoting prompt recover at carrying out of complex therapy, including cases of oncological diseases.

Clinical trials of Ligfol, as an anticancer drug, were held at mammary tumor, proliferative mastopahty, venereal sarcoma, fibrosarcoma, gangiloma and other tumors. The most expressed effect was observed at therapy of innocent and malignant tumors of dogs’ and cats’ mammary glands. In various cases, was reached tumor growth impairment, its return development, achievement of proof remission and improvement of the animal’s general condition. Besides, it was shown that application of Ligfol in complex with radiotherapy and cytostatic treatment provides decrease in toxic effects and can potentiate anticancer effect.

It is also known that application of Ligfol at traumas, wounds, including infected wounds, burns, for acceleration of healing of seams in the postoperative period is highly effective, providing stimulation of reactivation processes and, accordingly, reduction of terms of healing. Irrigation of
surgical wounds with Ligfol directly ahead of stitching helps fast healing of the wound by a type of “primary tension”. The preparation is applied intramuscularly and by irrigation of wounded zones, it is possible to apply the preparation both separately and in complex with specific medications.

It is proved that application of Ligfol in complex therapy of diseases of infectious aetiology and before vaccination provides increase of response of the organism by means of immunity activation. Application of Ligfol for treatment of infectious diseases of various aetiologies enables to reduce duration of the sharp period of the disease and to accelerate the regenerative period.

Researches have shown that Ligfol possesses hepatoprotector influence that allows to use it not only for treating hepatitis of various aetiology, but also for treating other diseases, accompanied by defeat of a liver, and also in treatment regimens, collateral action of which is also is damage of a liver. Such cases are infectious diseases, parasitic diseases (pyroplasmosis), hepatotoxic action of some medicinal substances (chemotherapy).

Application of Ligfol before expected stressful loading (transportation, exhibition, vaccination, etc.) provides decrease or full prevention of development of stress-syndrome and its displays (reduction of body weight, reduction of appetite, changes of behaviour, etc.). Besides, use of Ligfol for treatment of the weakened animals’ various diseases in complex with means of specific therapy provides increase of resistance, reduction of negative consequences of stress, increase of protective forces of the organism and, accordingly, leads to reduction of duration of the disease and prompt recovery of the animal.

Thus, results of scientific researches and wide clinical trials proved that Ligfol possesses a wide spectrum of pharmacological activity and is effective, that allows to recommend it for wide application in treatment, preventive maintenance and rehabilitation of small domestic animals.
METHODICAL RECOMMENDATIONS ON LIGFOL APLICATION TO SMALL DOMESTIC AMINALS
LIGFOL PROMOTES:
Ø Restoration of immune reactions at second immunodeficiency states caused by agents of bacterial, virus, mycotic infections, and also arisen because of ageing, influence of adverse factors, invasions, complications after surgical operations, traumas, burns, cytostatic and corticosteroid therapy.
Ø Normalization of liver function.
Ø Detoxication of the organism, decrease of nephro-and hepatotoxic action of medical products.
Ø Activization of regenerative processes, stimulation of mitosis and protection of cells against damage.
Ø Optimization of exchange processes
Ø Achievement of long remission and increase of longevity at oncological diseases, and a part of animals achieve full recovery.
Ø Strengthening of postvaccinal immunity.
Ø Reduction of treatment duration and a term of regenerative period.
Ø Increase in percent of impregnation capacity, preventive maintenance of postnatal complications.
Ø Prevention of postoperative complications, better transference of narcosis.
Ø Maintenance of vitality of old and seriously ill animals.
LIGFOL PROMOTES ADAPTATION OF FUNCTIONS AND SYSTEMS OF THE ORGANISM DUE TO:
Ø Normalization of processes of formation of active forms of oxygen that entails normalization of lipid peroxidation.
Ø Activization of immune forms of protection: cellular and humoral factors of the immune answer.
Ø Activization of hemopoiesis.
Ø Ability to connect toxic xenobiotics and substances of albuminous origin.

**DOSAGE**
The preparation is applied by injections, intramuscularly:
Animals and birds weighing up to 1.0 kg- 0.1мл for an individual;
Animal sand birds weighing up to 10 kg – 0.1ml/kg;
Animals and birds weighing over10 kg – 1.0 – 2.0 ml for an individual.

**Local irrigation:**
Should be done with solution in proportion 1:1 (Ligfol + water for injections).
APPLICATION OF LIGFOL FOR ONCOLOGICAL DISEASES TREATMENT

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Therapeutic treatment (including during and after chemotherapy and radiotherapy)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Innocent tumors:</strong></td>
<td>· Improvement of general condition of the animal, increase of vitality.</td>
</tr>
<tr>
<td>6-8 injections once in 7 days.</td>
<td>· Prevention of immunodeficiency.</td>
</tr>
<tr>
<td><em>Refresher course</em>: in 2-3 months.</td>
<td>· Contribution to termination of growth and capsulation of the neoplasm, and in some cases, recovery of the animal.</td>
</tr>
<tr>
<td><strong>Malignant neoplasms:</strong></td>
<td>· Decrease in risk of relapse and prevention of metastasizing.</td>
</tr>
<tr>
<td>5 - 10 injections one time in 3 days; Further 1 time in 7 days, till steady positive effect is felt.</td>
<td>· Reduction of toxic action of antineoplastic therapy.</td>
</tr>
<tr>
<td><em>Supporting course</em>: 1-2 courses a year.</td>
<td></td>
</tr>
<tr>
<td><strong>Inoperable neoplasms</strong></td>
<td>· Significant relief of the condition and improvement the animal’s life.</td>
</tr>
<tr>
<td>3-5 injections with an interval of 1 time in 3 days.</td>
<td>· Prolongation of age.</td>
</tr>
<tr>
<td>Further 1 time in 7 days, till steady positive effect is reached.</td>
<td></td>
</tr>
<tr>
<td><strong>Operative treatment.</strong></td>
<td></td>
</tr>
<tr>
<td><em>Before operation</em>: 7-3 injections one time in 3 days <em>During operation (before and after stitching)</em> - local irrigation of operational field.</td>
<td>· Fast postoperative healing.</td>
</tr>
<tr>
<td><em>After operation</em>: 5-7 injections one time in 3 days depending on the condition.</td>
<td>· Prevention of postoperative complications.</td>
</tr>
<tr>
<td><strong>Postoperative period</strong>: 10 injections one time in 3 days</td>
<td>· Decrease in risk of relapse and prevention of metastasizing.</td>
</tr>
<tr>
<td><strong>Refresher course of treatment</strong>: 3 months layer (10 injections once in 3 days), further - 1-2 times a year.</td>
<td></td>
</tr>
</tbody>
</table>
## APPLICATION OF LIGFOL IN SURGICAL PRACTICE

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>By preparation for an operation:</strong> once 5 - 3 days before operative intervention.</td>
<td>· Improvement of bearableness of narcosis.</td>
</tr>
<tr>
<td><strong>During operation</strong> <em>(before and after stitching)</em> - local irrigation.</td>
<td>· Adaptation the animal’s organism to stress of forthcoming operational intervention.</td>
</tr>
<tr>
<td><strong>Postoperative period.</strong> Right after the operation 1-2 injections with an interval of 24-48 hours. Further 3-8 injections with an interval once in 7 days, until steady improvement of regeneration processes and stabilization of the animal’s condition. <em>Local irrigation:</em> Irrigation 1 - 4 times a day before signs of healing are shown.</td>
<td>· Preventive maintenance of secondary immunodeficiency.</td>
</tr>
<tr>
<td><strong>Contaminated surgery</strong> Once a day on 1-2-5-10 day of treatment. Under indications: once in 7 days, until steady improvement of regeneration processes and stabilization of the animal’s condition. <em>Local irrigation:</em> Irrigation 1 - 4 times a day, till signs of healing are visible.</td>
<td>· Acceleration of anogenesis</td>
</tr>
<tr>
<td></td>
<td>· Prevention of toxic action of hemolysis products on the liver and other vital bodies.</td>
</tr>
<tr>
<td></td>
<td>· Decrease in quantity and intensity of postoperative complications, reduction of hypostasis.</td>
</tr>
<tr>
<td></td>
<td>· Reduction of recovery terms.</td>
</tr>
</tbody>
</table>
APPLICATION OF LIGFOL WITH THE PURPOSE OF ACTIVIZATION OF REGENERATIVE PROCESSES
(Fractures, trophic ulcers, wounds, burns, traumas, close mechanical damages)

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>At infringement of cutaneous covering</strong></td>
<td>- Acceleration of angiogenesis</td>
</tr>
<tr>
<td><em>Local irrigation:</em></td>
<td>- Prevention of complications.</td>
</tr>
<tr>
<td>1) before stitching;</td>
<td>- Improvement of the animal’s condition</td>
</tr>
<tr>
<td>2) 1 - 4 times a day, till signs of healing are shown.</td>
<td></td>
</tr>
<tr>
<td>1-2 injections with an interval of 24-48 hours. Further, if necessary, 3-5 injections once in 7 days, until steady improvement of regeneration processes and stabilization of the animal’s condition</td>
<td></td>
</tr>
</tbody>
</table>

APPLICATION OF LIGFOL FOR TREATMENT OF LIVER AND PANCREAS DISEASES

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7-10 injections once in 3 days, till steady positive effect is shown.</strong></td>
<td>- Reduction of intoxication.</td>
</tr>
<tr>
<td><em>Refresher course:</em> 1-4 injections during a month.*</td>
<td>- Normalization of liver function.</td>
</tr>
<tr>
<td></td>
<td>- Normalization of microflora of digestive tract and reticuloendothelial system.</td>
</tr>
<tr>
<td></td>
<td>- Reduction of recover terms.</td>
</tr>
</tbody>
</table>

APPLICATION OF LIGFOL AT INTOXICATION, TOXICOSIS, POISONING.

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course: 3-5 injections once in 3 days.</td>
<td>- Detoxication of the organism.</td>
</tr>
</tbody>
</table>
## APPLICATION OF LIGFOL AS NONSPECIFIC IMMUNOPROPHYLAXIS AND IMMUNITHERAPY BY INVASION DISEASES

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
</table>
| **Treatment of helminthiasis.**  
72-48 hours prior to and on day of dehelmintization, further – according to indications on 5, 15 and 45 day after it. | · Prevention of immunodeficiency.  
· Reduction of toxic, immunosuppressive and allergenic effect on the animal’s organism  
· Prevention of anemia. |
| **Treatment of arachnosis**  
*(demodicosis, etc.)*  
4 injections with an interval of 7 days. |                                                     |
| **Treatment of protozoosis**  
*(pyroplasmosis, etc.):*  
4-6 injections once in 3 days, further - 3-7 injections once in 7 days. |                                                     |

## APPLICATION OF LIGFOL FOR TREATMENT OF VIRUS, BACTERIAL AND FUNGOID DISEASES

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
</table>
| 2 injections with an interval of 24-48 hours, further – on 5, 10,15, 20 days of treatment | · Alleviation of the condition.  
· Removal of intoxication.  
· Prevention of secondary immunodeficiency.  
· Increase in a percent of survival rate.  
· Reduction of the disease duration and terms of recovery.  
· Prevention of the illness recidivation. |
APPLICATION OF LIGFOL FOR IMPROVEMENT OF QUALITY OF VACCINATION
(In addition to the program of preventive vaccination at the obscure immune status)

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
</table>
| Once, one day prior to vaccination (if necessary, a repeated injection on the day after vaccination). | · Reduction of risk of such phenomenon as “break of a vaccine” when an animal can fall ill after vaccination  
· Strengthening of the immune answer.  
· Prevention of postvaccination complications. |

APPLICATION OF LIGFOL IN REHABILITATION PERIOD OF ANIMALS.

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
</table>
| 3-4 injections with an interval of 7 days. | · Restoration of the immunoreactivity system after application of immunosuppressants.  
· Prevention of anemia.  
· Normalization of metabolism and increase of the animals’ immune status. |

MAINTENANCE OF OLD AND SERIOUSLY ILL ANIMALS’ QUALITY OF LIFE

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
</table>
| Once in 7 days | · Improvement of the general condition, including improvement of appetite and processes of digestion.  
· Rise of vitality  
· Increase of the organism’s resistance. |
### PREVENTION OF STRESS-SYNDROME

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 injections with an interval- 1 injection in 7 days Transportation, exhibitions, transition to other owners, etc. once in 24-48 hours, at long transportation - each 48 hours</td>
<td>· Adaptation to adverse conditions. · Increase of the organism’s resistance.</td>
</tr>
</tbody>
</table>

### REGULATION OF REPRODUCTIVE FUNCTION

<table>
<thead>
<tr>
<th>Dosage schedule</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) <em>Male and Female:</em> 10 days prior to copulation, three injections, one time in three days.</td>
<td>· 100 % fertilization.</td>
</tr>
<tr>
<td>2) <em>Female:</em> the fist injection: 30-15 days prior to parturition the second injection: within 2-3 hours after parturition.</td>
<td>· Prevention of postnatal pathology. · Safety of posterity in the first days of life.</td>
</tr>
<tr>
<td>3) <em>Female:</em> 2-4 injections once in 7 days from the moment of the kindle remove.</td>
<td>· Prevention of stress-syndrome. · Recovery of the organism after parturition.</td>
</tr>
</tbody>
</table>
Duration of observation - 12 months.
Dozes and duration of treatment:

- Dogs and cats weighing less than 10 kg – 0.1 ml/kg; i.m.
- Dogs and cats weighing over 10 kg - 1-1.5 ml per animal; i.m.
- Course of treatment 6 - 12 injections; once in 2 days.
- Course of treatment is repeated in 1 - 3 weeks.

Results of Ligfol application for oncological diseases

<table>
<thead>
<tr>
<th>№</th>
<th>Diagnosis</th>
<th>Quantity of patients</th>
<th>Result of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Remission</td>
</tr>
<tr>
<td>1</td>
<td>Lymphosarcoma</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Epidermoid cancer</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Mammary tumor</td>
<td>25</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>Venereal sarcoma</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Nonkeratinous cancer</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td>38</td>
<td>31</td>
</tr>
</tbody>
</table>
### Results of Ligfol application for mammary tumor

<table>
<thead>
<tr>
<th>Kind of operation</th>
<th>Quantity of animals</th>
<th>Remission</th>
<th>Oncological complications</th>
<th>Surgical complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional mastectomy</td>
<td>14</td>
<td>13</td>
<td>1 (corset cancer)</td>
<td>2 (ceroma)</td>
</tr>
<tr>
<td>Lateral mastectomy</td>
<td>8</td>
<td>7</td>
<td>2 (relapse)</td>
<td>3 (ceroma, failure of stitches)</td>
</tr>
<tr>
<td>Bilateral mastectomy</td>
<td>3</td>
<td>1</td>
<td>1 (metastatic disease)</td>
<td>1 (ceroma, failure of stitches)</td>
</tr>
</tbody>
</table>

- Ligfol reduces quantity and intensity of surgical postoperative complications

### Influence of Ligfol on quantity and intensity of surgical postoperative complications at mammary tumor

<table>
<thead>
<tr>
<th>Surgical complications</th>
<th>With application of Ligfol</th>
<th>Without application of Ligfol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity of patients n-25</td>
<td>Duration of treatment</td>
</tr>
<tr>
<td>Ceroma</td>
<td>2</td>
<td>3-5 days</td>
</tr>
<tr>
<td>Ceroma, failure of stitches</td>
<td>3</td>
<td>3-10 days</td>
</tr>
<tr>
<td>Ceroma, failure of stitches</td>
<td>1</td>
<td>7 days</td>
</tr>
</tbody>
</table>
**Epidermoid cancer of the cat’s mandible jaw**

Cat, 13 years. Involvement of soft tissue, body and intermaxillary shoot of the mandibular bone, pathological fracture (the diagnosis is laid on the basis of clinical researches, radiography, postoperative histologic research). Treatment: subtotal osteotomy of the right mandibular bone is done. Ligfol, antibiotic therapy. Result of treatment: healing by primary intention, duration of remission is 9 months.

**Nonkeratinous cancer of II-III phalanxes**

Diagnosis is put on the basis of clinical researches, radiography, and postoperative histologic research. Disarticulation was held. Result of treatment: healing by primary tension. Duration of remission - 12 months.

**Lymphosarcoma**

Cat, 7 years, Lymphosarcoma of mesenteric glands, size of the tumor if 5x6 cm (the diagnosis is put on the basis of clinical researches). The animal has cachexia, anorexia and asthenia.

30 days after the beginning of monotherapy with Ligfol:
- good appetite, weight increase.
- Vital activity, reduction of the tumor’s sizes by 3 times.

**Spleen lymphosarcoma**

Rottweiler, she-dog, 7 years (the diagnosis is put on the basis of clinical researches, ultrasonic scanning, postoperative histologic research). Splenectomy was held. Treatment: Ligfol, Symptomatic therapy. Result – 4-month remission.
Venereal sarcoma (genital-oral form)

Doberman pinscher, 1.5 years (the diagnosis is clinical). Held: tonsillectomy, extirpation and electrochemical coagulation of the zone of tumor growth on penis. Treatment: Ligfol. Result of treatment: formation of a cicatrix on the 17th day from the operation. Relapse in 2 months, repeated operation, increase of retropharyngeal and superficial inguinal lymph nodes. Course of treatment: chemotherapy - vincristin, Ligfol. Outcome: recovery (the animal is observed during 4 months).

Haematological indices

<table>
<thead>
<tr>
<th>ANALYSIS</th>
<th>G 0/g %</th>
<th>E 1 1/0 l</th>
<th>L 10/l</th>
<th>ESR mm/h</th>
<th>P</th>
<th>C</th>
<th>E</th>
<th>M</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14.0</td>
<td>5.7</td>
<td>18.6</td>
<td>15.0</td>
<td>4</td>
<td>74</td>
<td>7</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>16.2</td>
<td>6.6</td>
<td>7.0</td>
<td>26.0</td>
<td>2</td>
<td>53</td>
<td>-</td>
<td>8</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>17.0</td>
<td>5.7</td>
<td>13.2</td>
<td>2</td>
<td>3</td>
<td>66</td>
<td>7</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>17.8</td>
<td>6.0</td>
<td>9.3</td>
<td>1.5</td>
<td>3</td>
<td>68</td>
<td>11</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>17.6</td>
<td>6.7</td>
<td>10.7</td>
<td>2</td>
<td>1</td>
<td>73</td>
<td>5</td>
<td>-</td>
<td>21</td>
</tr>
</tbody>
</table>
Veterinary clinic

PBOUL Onyshchuk I.A.
Moscow

For the first time we applied the preparation to cure animals’ oncological diseases. Not sterilized she-dogs aged five and older, with mammary tumors, are often brought to us. We usually do ovariohysterectomy and remove the tumors. Depending on the animal’s condition, this is done in one or several stages. Without additional treatment, there often were relapses. We used Ligfol in several treatment regimens. In the first regimen, Ligfol was prescribed as a course of seven injections (one injection in three days) before operation, provided that the animal does not require urgent operative intervention, and then, after operation, it was prescribed in the doze of from five to seven injections, depending on the condition of the animal. In three months, the course with Ligfol was repeated. It was marked that after the first injections, the tumors decreased in size, became more localized, that essentially facilitated the further operative treatment. Further it is recommended to run preventive courses with the preparation 1-2 times a year. Those animals observed in the clinic within a year, did not have relapses. In the second regimen, the preparation was applied after operative intervention, as a course of 10 injections: 1 in three days. Fast postoperative healing was marked. The animal quickly came to the senses after operation, postoperative complications were not observed. If before operation analyses of blood were done, then after Ligfol treatment, the indices noticeably improved. The same was marked in the first regimen. It was recommended to repeat the courses of 6-8 injections once in half a year. According to observations, relapses were not seen. In the case when the mammary tumor was in the form of a small node, the condition of the animal was satisfactory; indices of blood analyses did not exceed the norm essentially. There
were several analogous cases. After the course with Ligfola, the nodes disappeared. Within a year, one more course was conducted, with no relapses observed.

**Tumors of uterus and ovaries**

Often animals with polycystic ovaries and uterus tumors come to light. First two treatment regimens are used, depending on promptness of the operation. Diagnosis is put on the basis of results of biochemical and clinical analyses of blood, data of ultrasonic research and diagnostic laparotomy. After application of Ligfola, absence of postoperative complications and good healing of stitches is marked. The animal feels good, quickly starts to eat, and is rather active.

**Spleen tumors**

Sometimes by indications we do splenectomy. For comparison, the animals, who received Ligfol, much more quickly recovered in post-operative period. Within a year, a repeated course was applied, condition of the animal is satisfactory.

**Inoperable tumors**

In particular, tumors of the liver. Unfortunately, the animals’ owners turn for help in extensive-stage disease. Nevertheless, application of Ligfol allows considerably alleviating the animal’s condition, prolonging his life. The animal conducts rather active way of life.
Cat Una, 15 years old. Diagnosis: Papillary cancer of mammary (28.03.03 - clinic Biocontrol). Prescribed medication: Ligfol 0.5 ml №10, Coenzyme compositum 1.0 ml №10, Traumel 1.0 ml №10. Stabilizing course with Ligfol 0.3 ml once a week was also prescribed: the animal’s condition stabilized, the animal feels good. The tumor reduced a little.


Mongrel Vixy, 10 years old. Diagnosis: Plural tumors on mammary glands. Prescribed treatment: Ligfol 2.0 ml once in three days, №8. Results of treatment. Examination of the animal was conducted at each injection. After the first injection, general condition of the animal improved. After the third injection, sizes of the tumors reduced a little. At the last injection, indurations in mammary glands were not palpated.

Stafford Rich, male-dog, 11 years old. Diagnosis: Tumor on testicle. Prescribed treatment: castration, Ligfol 2 ml i.m. 10, Dexamethasone according to the scheme (1 ml №2; 0.7 ml №2; 0.5 ml №2; 0.2 ml №2), Baitril 2.5 % 5 ml s/c №5, Lespeflan 10 drops once a day. Results of treatment: healing passed without complications, no relapses. The condition is satisfactory.
Dog Filya, 8.5 years old. Diagnosis: Tumor in abdominal cavity. Prescribed medication: Ligfol 2 ml i.m. once in 3 days №5. No-spa + Analgin + Dimedrol 1 ml i.m 2 times a day during 4 days. Coenzyme compositum 2 ml i.m. once a week №7. Results of treatment: no complaints, condition is satisfactory. 5 more injections of Ligfol are prescribed.

Clinic of Veterinary Medicine Unior Ltd
Veterinary S.U. Burmistrov, Moscow

Patient – Japanese bark, Dunya, 7 years old.
Anamnesis: the animal had the operation ovariohysterectomy. Postoperative period - without complications. Stitches were removed 10 days later. The animal was cheerfully, active, appetite was not worsened.

25 days after the operation, the owner addressed in occasion of accruing decrease in Dunya’s weight, the dog had constant salivation and bad appetite. As a result of estimation of the animal’s condition, after clinical examination, thin-needle biopsy of the left submandibular salivary gland was conducted. By results of the analysis, malignant regeneration of the salivary gland took place. The owners refused from surgical manipulations and applications of cytostatic preparations. During 7 days, fluid therapy was conducted, the animal’s condition worsened. At initial weight of 2.4 kg before the operation, to the moment of fluid therapy beginning, Dunya weighed 1.3 kg.

It was decided to add Ligfol to the main preparations. Dosage was established equal 0.5 ml per animal, frequency rate - once in 3 days - 5 injections, further – once in 7 days - 4 injections. After 3-rd injection, Dunya cheered up a bit, began to show interest for what was going around. Live weight did not reduce. 1 month later, Dunya weighed 1.8 kg, appetite was kept, stool - without expressed
changes.

A refresher course of treatment was conducted in a month, dosage – 0.3 ml, interval – once in 5 days 4 injections. The animal’s condition is satisfactory, appetite is moderated, weight is stable.

On the background of Ligfol, a certain stabilization of the organism took place. Considering Dunya’s diagnosis, we achieved a certain preservation of the dog’s satisfactory condition. Unfortunately, further supervision over the animal was not possible. In September, the owners did euthanasia. The owners are rather old people and on the background of certain hysteria because of the diagnosis, they did not want to conduct further treatment. Another young dog lived in their house.

Veterinary clinic Four with a Tail, Veterinary Ledeshkova O. N., Belgorod.

Cat, 12 years old, was brought with the diagnosis mastopathy, melanoma on the upper lip, in the middle lobes of mammary - dense formation sized 6x7 cm, the animal’s general condition was unsatisfactory. Operative treatment is senseless. Prescribed - Ligfol i.m. once a day, every two days, in the dose of 0.5 ml. In total, in the first course of treatment, seven injections were done. After the third injection, condition of the cat stabilized, but the most important is that the tumors began to reduce sharply. The cat put on weight. In total, four courses of treatment were conducted, with an interval of 14 days.
Male dog, Rottweiler, 7 years old. Diagnosis: Adenoma of prostate. Size 12x6.5 cm. Complicated urination. The dog grew thin, condition was unsatisfactory. Ligfol was applied in a doze of 2.0 ml i.m. every two days. Improvement after the first treatment course was insignificant. But the owners decided to repeat the course, referring to the literature. The second course - doze was doubled. The result was visible after the third injection. Urination restored. Condition of the dog considerably improved.

Privately practicing veterinary
Lobashova O.V., Voronezh

Dog Masha, 1.5 years old. Diagnosis: Transmissible venereal sarcoma. Prescribed treatment: cyclophosphan and vincristin according to the schedule. Ligfol in a doze of 0.5 ml per animal, with frequency rate of application - once a week. The course included 3 injections. Fluid therapy. Results of treatment: After the 1st course bloody discharges stopped. After the 2nd course, the tumor disappeared. No by-effect of chemotherapy. The animal is entirely healthy.

Dog poodle Richi, 9 years old. Diagnosis: Tumor on the 3rd package of mammary gland on the right. Prescribed treatment: unilateral mastoectomy with removal of axillary and inguinal lymph nodes was conducted. 5 days prior to the operation, the dog was injected with Ligfola 0.5 ml per head. After the operation, injections of Ligfola in a doze of 0.5 ml per head, with periodicity of once in 7 days, were ordered. The course included 6 injections. Results of treatment: healing by primary intention, with formation of insignificant ceroma. The ceroma was removed by 2 multiple punctures. Condition of the is satisfactory.
Relapses and metastasizes were not observed.

***

Riesenschnauzer 9.5 years of age. Diagnosis: Tumor on mammary gland, ulcerated. Prescribed treatment: unilateral mastoectomy with removal of axillary and inguinal lymph nodes was conducted. 5 days prior to the operation the dog was injected with Ligfol 0.5 ml per head. After the operation, injections of Ligfola in a doze of 0.5 ml per head, with periodicity of once in 7 days, were ordered. The course included 6 injections. Results of treatment: condition of the dog is satisfactory. Relapses and metastasizes were not observed.

***

Cat. 8 years old. Diagnosis: Tumor on mammary gland of the wrong form, uneven, ulcerated. Prescribed treatment: unilateral mastoectomy with removal of axillary and inguinal lymph nodes was conducted. Ligfol five days prior to the operation 0.2 ml and after the operation - 0.2мл on 3 - 8 - 13 days. Results of treatment: the stitch healed by primary intention. During 2 months, no relapses and metastasizes observed.

***

Cat Lola, 9 years old. Diagnosis: Tumor of mammary gland. Prescribed treatment: operation for removal of the tumor from the mammary gland. 4 days prior to the operation - Ligfol 0.4 ml, and after the operation - 3 more injections with the same dosage, with periodicity of once a week. Results of treatment: healing by primary intention. Stitches were removed on the 8th day. No relapses, small scar remained.
Dog (weight 10-12 kg) 6 years old. Diagnosis: Between 3 and 4 fingers of a forepaw, relapse after the operation for removal of histiocytoma. Prescribed treatment: a course of Ligfol, 1 ml once a week. Results of treatment: the dog ceased to pay attention to the tumor, and the tumor stabilized in size.

Dog Darya, 11 years old. Diagnosis: Tumor of the right back share of a mammary gland. At examination the tumor was noticed. Crunch in a knee joint. Prescribed treatment: Ligfol i.m. 2 ml once in 3 days №4, Cytostat inside 2 tablets 2 times a day during 3 weeks, procaine blocks, Phosphorus gommacord s\c 2 ml once in 3 days №5. Results of treatment: supervision was held one time in 3 days during 1 month. The tumor softened and became flat form. Hyperaemia and temperature disappeared. Crunch in the knee and lameness also disappeared.

Small poodle, 15 years old. About 2 years ago, underwent ovariohysterectomy and removal of a mammary. Reason of the visit: during 4 days the dog refused to eat, and had dark-brown discharges from external genitals during 4 months, alopecia on the back. Diagnosis: transmissible sarcoma, melanoma of the right eyeball, tumor of a mammary abdominal gland at the right. Treatment: Ligfol in a doze of 0.1 mg/kg 7 injections once in 3 days. On the 2nd day after the first injection, improvement of the general
condition was marked (raise of activity and appetite). After the full course of treatment: condition of the animal is satisfactory, discharges from genitals reduced and became light, hair coat restored, sizes of the tumors did not change.

**Osiris Ltd, veterinary clinic.**

**Veterinary Petukhova A.V., Ivanovo**

English cocker, she, 6 years old. Examination revealed a tumor of the both back packages of mammary glands. From the left, a subscapular lymph node was also very increased. The she-dog never coupled. Proscribed: Ligfol – 0.5 ml i.m. 1 time in 3 days, 5 injections. At the repeated visit to a veterinary: the lymph node not increased. The tumor on the packages remained without changes. Preventive injections were recommended: Ligfol – 0.5 ml once in 5 days, №3 once a year.

***

English cocker, male dog, 9 years old. Complaint was on a strange uneven knob on the dog’s penis. Course of treatment: Ligfol – 0.5 ml once in 3 days, 4 injections. Growth of the tumor s stopped.

**Veterinary treatment-and-prophylactic center Vetservice,**

**Veterinary Smirnov A.A., Penza.**

Big poodle, 12 years old. Visited a vet in occasion of a bleeding tumor on external surface of the right ear, sized 0.5x0.5 cm. Ligfol was prescribed: 1.5 ml i.m. 1 time in seven days. Seven injections all in all.
After the second injection, the tumor stopped bleeding. After the fourth injection, the tumor disappeared. The owner says that the dog feels much better, appetite improved.

***

French bulldog, 8.5 years old. Visited a vet in occasion of refusal from food, and vomiting. Examination revealed a greatly increased submaxillary lymph node on the right. Symptomatic treatment was prescribed: i.v.Essentiale; Cotozal, Cephazoline, Ligfol in a doze of 1 ml i.m three successive days. After that, four injections once in 7 days. On the second day, the dog started to drink water, vomiting stopped. On the third day, the dog began to eat little by little. The lymph node reduced to the size of a pea. The dog eats normally.

Veterinary center DEAL, Barnaul.

Cat Kesha, 14 years old, weight 3 kg, T 37.8-38. Came with the complaints: the cat was sleepy, he hid, he had anorexia, liquid and yellow excrement, periodical vomiting with bile. Analysis of blood: ESR-62; L-15.1; Hb-102, b-3; e-0; p-8; c-68; l-19; m-2; gip++; granularity of erythrocytes+++; sugar 7.0 mm/l. By the results of ultrasonic scanning, in the right lobe of a liver, there was a large formation, size of which is 1.3*1.5 cm, splenohepatomegalia. As an antineoplastic preparation Ligfol was prescribed in a doze of 0.3 ml, with an interval 1 doze in 7 days. Repeated examination: ESR-31; L-10.2; Hb-80, b-3; e-2; p-7; c-62; l-19; m-7; sugar 8.0 mm/l. Ultrasonic scanning showed that the volume of the tumor did not increase. The cat has fine appetite, no vomiting, excrement and urine are in norm. Further application of Ligfola with an interval of 1 time in 7 days is recommended.
Contaminated surgery
Duration of supervision - 12 months.

Ø Dogs and cats up to 10 kg: 0.05 ml/kg, i.m.
Ø Dogs and cats over 10 kg: 1-1.5 ml, i.m. per animal
Ø Course of treatment: one doze on 1-2-5-10 day

Ligfol promotes:
Ø Mobilization of phagocytes
Ø Activization of immunocompetent organs

Applied locally and intramuscularly

Results of Ligfol application for treatment of purulent surgical diseases

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Quantity of patients</th>
<th>Results of treatment</th>
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<tr>
<td></td>
<td></td>
<td>Recovery</td>
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<tr>
<td>Juvenile furunculosis</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Purulent wounds</td>
<td>29</td>
<td>29</td>
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<tr>
<td>Open fractures, dislocations</td>
<td>16</td>
<td>15</td>
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<tr>
<td>Obstruction, peritonitis</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Pyometra</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70</strong></td>
<td><strong>67</strong></td>
</tr>
</tbody>
</table>
Juvenile furunculosis
The animal underwent partial surgical processing, bandagings. Antibacterial local and system therapy prescribed – Ligfol. Duration of treatment - 8 day. Outcome - recovery.

Purulent wounds
Average poodle, 3 years old, bite wounds of the lateral abdominal wall, 4 days after carrying out of surgical processing - mortification of the abdominal wall.
Repeated surgical processing, bandagings are carried out. Antibacterial local and system therapy prescribed - Ligfol. Outcome - recovery.

Obstruction, peritonitis
Condition of the bowels is border-line with mortification. Intensive therapy with Ligfol - 4 days.
Outcome – recovery of the animal.

Open fracture, osteomyelitis
Husky, 1.5 years old, autotrauma, open fracture, crush of soft tissues of the forearm.
Ø Extramedullary osteosynthesis.
Ø Osteomyelitis, paraosseous phlegmon, nonunion (on 24th day from osteosynthesis).
Ø Clamp is removed, tubular drainage implanted, solid stitches, irrigation with 1- % solution of dioxidine.
Treatment: immobilization, antibacterial therapy, Ligfol.


**Open fracture, osteomyelitis**

Metis, male dog, 8-9 months old, autotrauma. Time injury - 5 days.

Ø Osteosynthesis with tension band wiring.

Treatment: immobilization with a muzzle, postoperative sanitation of the mouth, antibacterial therapy with Ligfol.

Outcome: Recovery. A terror for sugar bones and wooden toys.

**Veterinary clinic**

**PBOUL Onyshchuk I.A., Moscow**

After operative intervention old, weakened animals have complicated peritonitis and purulent inflammations, their sutures often badly overgrow. We applied Ligfol in postoperative treatment that allowed to accelerate accretion of sutures and to avoid their divergence. The preparation proved well at treatment of purulent neglected abscesses.

***

Sheep-dog, 11 years old, she. Objective status: T-38°C, from a loop - purulo-bloody discharges. Excessive thirst. General condition is unsatisfactory, heart sounds are hollow. The stomach is increased. Mucous membranes are pale. Diagnosis clinical: Pyometra. Prescribed treatment - operation for pyometra, hysterectomy. Directly after the operation Ligfol was injected 0.5 ml. Prescribed – fluid therapy, vitamin therapy, antibacterial therapy. Repeatedly Ligfol was applied 5 days later – 0.5 ml. Results of
treatment: the sutures healed by primary intention. Postoperative period passed easier, than it was expected according to condition of the dog.

***

Cat, 3 years old. Opened abscess on the cheek. Irrigation with 50- % water solution of Logfol 2 times a day and application of wound healing ointment led to formation of granulation tissue on the 4th day, by the 10th day the wound closed completely.

***

Cat, 2 years old. Comminuted fracture of the left hip. Osteosynthesis operation fulfilled. Prescribed - Ligfol 0.2 ml once in 7 days, the course made 4 injections. 3 weeks later the control picture shoed complete fusion.

Privately practicing
Veterinary Lobashova O.V., Voronezh

Boxer, 10 years old. Name Gerda. Diagnosis: Utering bleeding, after the operation – suture line disruption. Prescribed treatment: surgical d-bridement of the suture, Ligfol 1 ml one time. Result of treatment 3 days after, yawning of the suture decreased to 0.5 cm. 7 days later - the wound completely closed. The dog feels well.

***

Sheep-dog, 11 years old. Lika. Diagnosis: Pyometra. Prescribed treatment: operation for pyometra, hysterectomy. Directly after the operation was injected Ligfol 0.5 ml. Fluid therapy, vitamin therapy, antibacterial therapy prescribed. Repeatedly Ligfol 5 days later – 0.5 ml. Result of treatment: the stitch healed by primary intention. Postoperative period passed easier, than it was expected according to condition of the dog.
**Director of the veterinary center Fauna**  
**Vorobyeva V.S., Ryazan**

Dog Chunya, 9 years old, 5 kg. Diagnosis: Pyometra, mammary tumor. Prescribed treatment: operation – hysterectomy and extirpation of a mammary gland. Gentamicin 1.0 ml 2 times a day. Ligfol 8 injections on 0.5 ml, with an interval of 4 injections in 2 days, then 4 injections of 1 time in 7 days. Result of treatment: the condition is satisfactory, sutures removed on the 7th day (the suture is dry and even).

***

Cat Helga, 4 years old, exotic. Diagnosis: Pyometra. Prescribed treatment: operation - hysterectomy. Ligfol 0.5 ml once in 3 days - 4 injections all in all. Result of treatment: removal of sutures on the 5th day. The condition is satisfactory.

**Veterinary clinic Four with a Tail,**  
**Veterinary Ledeshkova O. N., Belgorod**

Dog, husky, 3 years old. During hunting, a hinder leg of the dog was shot. Muscles are practically intact, a bone suffered. Absence of a fragment of the bone tissue sized 5 cm. Osteosynthesis was done. Plaster was removed from the dog on the second day. Periostitis and suppuration of muscles began. As the muscles are not damaged, it was decided to continue treatment of the paw. Application of antibiotics did not bring desirable effect. It was decided to apply Ligfol in a doze of 3.0 ml every three days. After the fifth injection, fast regeneration began. The bone and tissues are restored.
Hepatitis. After 1-2 injections significant improvement took place. The animal felt appetite, yellowness of mucous membranes went. Ligfol was prescribed in complex therapy, with a course of 10 injections. The same schedule of treatment was applied at healing pancreatitis. Results came rather quickly (2-4 days).

At neglected enteritis of various aetiologies, Ligfol was applied. Animals who received Ligfol recovered more quickly than those who did not receive the preparation. Ligfol was also effective at carrying out operations for intestines under various indications, for example, at resection of intestines, Ligfol application in complex therapy facilitates course of the postoperative period.

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German shepherd Garik, male dog, 8 years old. Diagnosis: Noninfectious hepatitis. At examination: temperature 39.60°C, anorexia, weakness, oppression. At palpation - morbidity in the field of the liver. Mucous are of yellowish shade. Analysis of blood: AST 44 un/l (norm is up to 42), general Bilirubin 15 Мк mol/l (norm is up to 13.5). Prescribed medication: Essentiale 3 ml i.v., №5, Nospa 2 ml 2 times a day - 4 days; drop-by-drop introduction: phis. solution - 150 ml, 5-% glucose - 100 ml during 3 days. Gamavite 5 ml s/c, №10, Ligfol 2 ml i.m.№10. Results of treatment: general condition is satisfactory. Mucous membranes are of pink color. The stomach at palpation is painless. Excrement is shaped, no vomiting.
Labrador Gera, she-dog, 7 years old. Diagnosis: Hepatites of obscure aetiology. Analyses on 02.12.04.: AST 251 un/l (norm is up to 42), ALT 199 un/l (norm is up to 52), LDH 306 un/l (norm is up to 164). On 17.12.04: AST 43 un/l, ALT 55 un/l, LDH 160 un/l. Prescribed treatment: intravenously drop-by-drop – Ringer’s solution 100 ml + Gamavite 4 ml-3 days. Ligfol 2 ml i.m. 1 time in 3 days, №7, Cocarboxylase 1 ml i.m. once a day, № 5, Inosine 1 ml drop-by-drop, Vitamins of B-group. Results of treatment: on the 5-th day the dog’s condition improved, appetite returned, vomiting stopped. On the 10th day, condition was satisfactory, no complaints. Ligfol course recommended 3 months later.

Veterinary clinic
PBOUL Onyshchuk I.A., Moscow

German shepherd, she-dog, 11 years old. Clinical diagnosis: cysts on ovaries, plural tumors of the uterus, hematometra, mammary tumors. Chronic hepatopancreatitits. Anamnesis: the dog had strong pains in the area of the stomach, bloody discharges from the loop, anemia, diarrhea, nausea. Ovariohysterectomy was done. At the moment of visiting the vet, the animal was languid, ate badly, drank much, and had frequent urges to vomiting. Objective status: mucous are pale, temperature 37,50С. The stomach by palpation is strained, painful, by auscultation - bradycardia. By the results of blood analyses - pathology of the liver. Treatment: Ligfol 2.0 ml, №10; Traumel 2.0 ml, №10, Coenzyme compositum 20 ml, №10, Chelidonium Gamacord 2.0 ml, №10. Result of treatment: after the course of treatment, tumors on the mammary completely disappeared. Function of the liver by results of blood analyses was restored.
Moscow veterinary clinic
Artemida under the direction of N.M.Larionova.
Wavy parrot, 4 years old. Diagnosis: suspicion of hepatopathy. Treatment: hepatoprotectors, vitamins, symptomatic therapy led to only temporary improvement. Three weeks after the treatment was started, the parrot was again apathic and refused to eat. The bird was prescribed Ligfol in a dose of 0.01мл i.m. once a week, 4 injections. On the day after the first injection of Ligfol, the bird began eat, slackness disappeared.

GASTROINTESTINAL TRACT DISEASES
Enteritis

Buzlama V.S., doctor of biological sciences, professor, Voronezh. Privately practicing veterinarian Lobashova O.V., Voronezh

APPLICATION OF LIGFOL FOR COMPLEX TREATMENT OF DOGS FOR PARVOVIRUS ENTERITIS

Dogs’ parvovirus enteritis is an acute contagious disease. Amenable are dogs of all ages, but the dogs who received the full course of vaccination (those whose age is over 1 year) fall ill on the background of immunosuppressive condition.

Replication of the virus occurs in the cells with high level of mitosis and affects mainly the cells crypt intestines, unripe erythrocytes and granulocytes, tissues of lymphopoiesis (lymph plates, lymph nodes, thymus and spleen) and the cells of myocardium while they are dividing. At that, the virus does
not cause necrosis. Owing to absorption of necrosis products into blood and loss of liquid, microtrombi are formed in capillaries (DVS-syndrome), signs of endotoxic hypovolemic shock appear. Toxicosis is accompanied by irritation of the emetic center that is shown by unrestrained vomiting. Damage of a cardiac muscle leads to cardiovascular collapse and edema of lungs. Duration of the illness makes 1 - 6 days. Death rate reaches 70%.

Treatment of parvovirus enteritis includes complex symptomatic therapy and is directed to elimination of vomiting, dehydration of organism, acidosis and secondary infection.

Considering, that Ligfol is the immunomodulator promoting reduction of accumulation of virus particles in the organism, the task was set to test its effect on dogs’ parvovirus enteritis.

4 dogs of different breeds were involved in the experience of treatment (German shepherd - 2, Staffordshire terrier - 1, Caucasian sheep dog - 1). All the dogs are aged from 3 to 6 months. The diagnosis was put according to clinical signs characteristic for the given disease. Analyses of blood were also done.

Complex symptomatic treatment of the animals was conducted. A set of medications included fluid solutions at the rate of 30 - 40 ml on 1 kg of weight of the body, antibiotics parenterally, vitamins (ascorbic acid 5% - 2 - 4 ml; B1 - 1 ml; B6 - 1 ml; B12 - 200 mkg) - once a day, Urotropin - 3 ml, Thiophocamfocain -1ml 2 times a day, Baralgin – 0.5 - 1 ml once a day, Cyclopheron 2 ml twice a day, Cerucal 1 ml, Dimedrol - 1 ml once a day

Ligfol was applied on the background of symptomatic therapy by the following schedule: 0.1 ml on 1 kg of weight, on 1-3-5 days. Control over efficiency of the preparation was done on the general condition of animals, appearance of appetite and containment of white cells in blood.

As a result of the treatment it appeared that comparing to the generally excepted therapy, application of Ligfol led to 36
improvement of general condition and stoppage of vomiting. If, beginning from the 5th day of illness, fall of white cells was observed at dogs, then after application of Ligfol raise of white cells up to 18000 in 10-3ml was observed, that is a good sign.

Use of Ligfol in complex therapy provided acceleration of improvement of the general condition on 1-3 days, fading of diarrhea syndrome, termination of vomiting.

Summing up, it is possible to speak about perspectives of Ligfol application in complex therapy of dogs’ parvovirus enteritis.

Veterinary clinic

PBOUL Onyshchuk I.A., Moscow

Spaniel Dezi, she-dog, 4 months old. Diagnosis: parvovirus enteritis. Examination: temperature 39.7°C, diarrhea, vomiting, the stomach by palpation was painful. Prescribed treatment: fluid therapy, vitamin therapy, antibacterial therapy. Ligfol 0.3 ml on the first day, then 0.3 ml intramuscularly 1 time in 3 days. Results of treatment: on the 3-rd day, the dog started to eat by small portions, vomiting and diarrhea stopped.

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Puppy, 3.5 months old, male dog. Not vaccinated. Diagnosed - parvovirus enteritis. Treatment was conducted under the scheme with application of antibiotics, vitamins, fluid therapy. Ligfol was applied as immunomodulator – 0.4 ml (on the basis of 0.05 ml/kg) intramuscularly on the 1-st day of visit, then on 2-5-10 days.

On the third day, vomiting completely stopped, diarrhea decreased, temperature returned to the norm. The dog started to eat, impellent activity was restored.
Spaniel, 4 months old, she-dog. Vaccinated with vaccine “Biovac”. Examination - temperature 39.7°C, diarrhea, vomiting, painful stomach by palpation, mucous membranes are light pink. Diagnosis: parvovirus enteritis. Treatment: fluid therapy, vitamin therapy, antibacterial therapy. Ligfol 0.3 ml on the first day of treatment. On the 3d put the dog started to eat by small portions, vomiting and diarrhea stopped. Repeated injection of Ligfol 7 days later, 03 ml. The dog eats, drinks, plays.

Diarrhea

Veterinary clinic
PBOUL Onyshchuk I.A., Moscow

Wavy parrot, male, 4 months old, and female - 6 months old. The birds had diarrhea, excrements of green color, polyuria. From the anamnestic it is known that during some time previous to the disease the parrots uncontrollably flew around the apartment, on the next day diarrhea appeared. For the moment of visit to the vet, condition of the birds was the following – the female parrot had loss of activity and appetite, the male - slackness, drowsiness, refused to eat, his feather cover was disheveled. Hypothetical diagnosis – bacterial food poisoning. Prescribed course of therapy - round-the-clock heating, dietary feeding, antibacterial therapy with Baitril, to stop intoxication - Gamavite, with the purpose of restoration of gastrointestinal tract’s normal microflora – immunoprobiotic Vetom. The preparation Ligfol was prescribed additionally - 3 injections with an interval of 2 days in a doze of 0.01 ml intramuscularly. During a day from the beginning of treatment, general condition of the birds improved, appetite and impellent activity were completely restored. On the 4th day, stool normalized.
Gastritis

Moscow veterinary clinic
Artemida under the direction of N.M. Larionova.

Cayman crocodile, age – 2.5 years. The reason for visit to the vet: strong slackness of the reptile, refusal of forage during a week, at an attempt to feed the crocodile forcibly – eructation of the fodder object some minutes later. Diagnosis: acute gastritis resulted from infringements of a temperature mode or as a display of the disadaptation syndrome. Treatment: Ligfol i.m. in a dose of 0.1 ml on 1kg of weight. The course included 5 injections, with an interval of 1 week. After 3 injections, the reptile started to eat. No repeated complaints and visits to the clinic.

Poisonings

Veterinary medical-prophylactic center Vetservice, Veterinary Smirnov A.A., Penza

Rottweiler, 1.3 years old, she-dog. Visited the vet because the dog stopped eating, did not drink water. Temperature – 37.4. Eye mucous is anemic and pale. Symptomatic treatment was prescribed:

1) i.v. - glucose 5 %, vitamin C, Essentiale;
2) Cephazoline, sulfocamphokainn, riboton, injections of Ligfola in a doze of 2 ml i.m once in 5 days.

Improvement began on the third day. The dog began to drink water, started to eat. On the fifth day, treatment of the dog was stopped. Good appetite restored, eye mucous became light pink.
PARASITIC DISEASES

Demodicosis
Veterinary center DEAL, Barnaul.

French bulldog Peti Levr, Delight of Night, age - 3 years, and French bulldog Peti Levr, Winter Cherry, age - 5 years. Extensive demodicosis in pustular form. Cherry had extensive damage of skin about 70 %. Treatment: saiphly, as immunostimulator - Ligfol with an interval of once in 7 days. The prescribed course of treatment - 6 weeks. By the end of the 2nd week, Cherry’s itch and hyperaemia disappeared, on the involved sites was seen growth of wool, no new signs of the disease. (As a rule, when saiphly is applied without Ligfol, on the 2-3 week, there is usually aggravation of the process and improvement is observed only 3-4 weeks later).

Piroplasmosis
Veterinary clinic Butovskaya, Kaydanovskiy M.A. c.b.s., Moscow

For clinical testing of the preparation, the animals brought to the Butovskaya veterinary clinic were used. Diagnosis to the animal was put on the basis of the data of anamnesis, clinical signs, and also researches of peripheral blood for presence of piroplasms there. The examined group of animals differed by great variability, both by intensity of invasion, and by hardness of the current disease.

Ligfol was used in combination with the standard therapeutic technique included: hyperhydration of the animal by intravenous introduction of Ringer’s solution, introduction of Veriben in standard dozage and the subsequent desintoxicational and supporting preparations - corticosteroids, antihistaminic preparations, Gamavite, Ferrum Lek, Cocarboxylase, sulfocamphocain, Essentiale, cyancobalamin, riboxin, etc. To seriously ill animals, a course of instillation therapy was prescribed, from 2 to 7 days. Dozes of
preparations were selected for each animal individually depending on severity of the disease. Ligfol was applied in a doze of 1 ml per a dog, up to 20 kg of live weight, and 2 ml – for a dog, over 20 kg of weight. Ligfol was injected once, on the first day of treatment.

Ligfol was injected to 40 dogs with the diagnosis piroplasmosis. It is necessary to note that from the described group only one animal died, which was brought to the clinic in extremely severe condition: icteritiousness of all covers, body temperature 41.8 °C. A majority of dogs, already on 2 - 3 day of treatment, felt satisfactorily and even such animals as 10-year-old Airedale terrier, with signs of hepatoencephalopathy showed significant improvement of their condition on 8 - 10 days of the therapy. Besides, great improvement of the condition of circulating blood was marked, so, the animals with hemolysis of weak and middle degree, quantity of red blood cells restored up to normal figures during 4 - 6 days, and at severely ill patients – during 5 - 7 days. The given statistics testifies that the preparation Ligfol facilitates condition of animals, preventing toxic action of Veriben and products of haemolysis on the liver and other vital organs, and also allows to reduce period of recovery by 30 - 40 %, to accelerate processes of blood regeneration and increase survival rate of patients - in the examined group (97.5 %, whereas, according to different authors, it makes 80 - 90 %).

**Veterinary clinic**

**PBOUL Onyshchuk I.A., Moscow**

Piroplasmosis (babesiosis) is a rather severe disease, during which the liver suffers, in connection with that both the disease and a standard therapy with Veriben possessing hepatotoxic effect damages cells of the liver. To avoid complications and quickly restore the work of the liver, Ligfol was prescribed, 4-6 injections. After the course is completed, indicators of blood biochemistry are restored. After 2-3 injections yellowness of mucous membranes decreases.
Dachshund Porter, 6 years old. Diagnosis: piroplasmosis. Prescribed treatment: Veriben, Ligfol 1 ml once in 3 days № 5, Gamavite 1.5 ml s/c once a day № 10, B12 0.5 ml s/c once a day № 7. Results of treatment: in 8 days, condition of the dog was satisfactory; on the 16th day - condition was satisfactory. No complaints.

Baltec, male dog, 1 year 8 months old. Diagnosis: babesiosis. Prescribed treatment: Veriben 2 times, Gamavite 5 ml i.m. № 5, drop-by-drop: Ringer’s solution 300 ml, glucose 200 ml, Amoxiciline 6 ml s/c 2 days, Ligfol 2.5 ml i.m. № 5. Results of treatment: on the third day of treatment the dog’s condition was satisfactory.

Director of the veterinary center Fauna
Vorobyeva V.S., Ryazan

Pekinese Micky, male dog, 7 years old. Diagnosis: piroplasmosis. Cardiomyopathy. Prescribed treatment: sulfocamphocain 1.0 ml twice a day № 10, vitamin B12 1 ml once a day. Aspirin 1/4 tab. once a day, Riboxin 1 ml once a day, Dexamethasone 0.5 ml once a day № 5. Ligfol 0.5 ml 1 time in 3 days № 5 and 3 injections with an interval of 7 days. Result of treatment: recovery.

Privately practicing
Veterinary Lobashova O. V., Voronezh

Caucasian sheep-dog Tsar, male dog, 2.5 years old. Diagnosis: piroplasmosis. Prescribed treatment: Berenil; dropper: glucose 5 % - 400 ml, Dexamethasone - 1 ml, ascorbic acid 10 % - 4 ml. Ligfol 0.5 ml intramuscularly twice, with periodicity of once in 5 days. During a week reception: Carsil 1 tablet twice a day, Pol-pala 1/2 of the glass 2 times a day. Results of treatment: full recovery.
Veterinary center DEAL, 
Barnaul.

31.05.05. American cocker Marusya, 3 years old. T 40.2; ESR-16.0; L-8.8; Hb-72,-2; e-1; p-4; c-68; l-20; m-5; hyp.er. ++; piroplasmosis in red blood cells; Er-2.0., anemia, dark urine, anorexia. Condition of the dog was extremely severe. The she-dog is pregnant. Expected date of birth of puppies 7-8.06.05. Alongside with symptomatic treatment, was used Ligfol in a doze of 1 ml. (weight of the dog was 11 kg.) with an interval of once in two days. 02.06.05 - control smear Er - 4.0, normocytes 2:100, piroplasmosis not found. The dog gave birth to live puppies 06.06.05 without complications. Ligfol was used after birth of puppies on the 2nd day in a doze of 1 ml i.m..

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Scottish setter Yarik, 7 years old. Has been ill for a week. Anorexia, vomiting with bile, urine yellow, t – 40.2. ESR -14; L-3.2; Hb-65, b-1; e-2; p-8; c-67; l-20; m-2; plasma is yellow, piroplasmosis in red blood cells. Along with symptomatic treatment – drop-by-drop: ringer and bicarbonate, geptral, B12, vitamin C, B6, riboxin, berenil. Ligfol was used daily in a doze of 1.5 ml. On the 4th day, control analysis of blood- smear: piroplasmosis not found, lipemitic plasma. The dog was discharged from the clinic for house treatment.

Ligfol was put 2 times more in a doze of 1.5 ml i.m.
DISEASES OF KIDNEYS

Crush kidney

Veterinary clinic
PBOUL Onyshchuk I.A., Moscow

At crush kidney, intoxication grows, loading on the liver increases. In order to facilitate functioning of the liver, we applied Ligfol, 5-7 injections in the course. After the first injection, there came improvement of the condition. On the background of Ligfol, other preparations applied by treatment are much more effective. Process of recovery goes steadily, without worsening

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Cat Phillip, 6 years old. Date of the first visit: 26.11.04. Diagnosis: crush kidney. Polycystic kidney. Examination: mucous membranes are pale, stomach painful by palpation, kidneys are greatly increased. Analysis of blood 21.11.04.: urea – 18.7 Мк mol/l (norm 8), creatinine - 170 (norm up to 165), AST - 37 (norm up to 29), amylase - 2918 Un/l (norm up to 1720). Blood analysis 26.11.04.: urea – 6.1 Мк mol/l, creatinine - 130, AST - 124 Un/l, amylase – 4781 Un/l. Prescribed treatment: intravenously: phys. solution 50 ml, 0.5 ml of Dopamine №3, Gamavite 4.0 ml №10, Ligfol 05 ml №7. Dates of repeated visits, data of clinical examination, treatment and the end result: 28.11.04. - Condition improved Т 38.0, appetite is bad. 30.11. - Condition satisfactory T 38.1оC Appetite is kept. 3.12. - Condition is stable.

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Persian cat Pusic, 7 years old. Date of the first visit: 3.10.04. Diagnosis: crushed kidney. Examination: Т 36.7о C; overfilled bladder, increased kidneys. Prescribed treatment: Prednisolone according to the schedule: 0.5 ml №2; 0.4 ml №2; 0.3 ml №2; 0.2 ml №2; 0.1 ml №2,
Cantarep 2 ml s/c once a day № 5; further 1 time in 2 days № 5, Palaverine 0.4 ml i.m 2 times a day, Amoxicyline 0.4 ml i.m. № 4, Dicynon 0.3 ml 2 times a day - 4 days, intravenously - glucose 5 % 30 ml; Ringer’s solution 30 ml, Gamavite 3 ml, Ligfol 0.4 ml i.m. № 5 1 time in 3 days.

Result of treatment: On 06.12.04 significant improvements, appetite. T 38.0°C. On 08.12.04 condition stabilized, T 38.4. On 12.12.04 condition satisfactory, urination act preserved, appetite normal, T 38.6°C. Blood analysis on 03.12.04: AST - 40 Un/l (norm up to 29), Urea - 15 Мк mol/l (norm 8), Creatinine - 199 Мк mol/l (norm up to 165).

GERIATRIC PRACTICE

Veterinary clinic
PBOUL Onyshchuk I.A., Moscow

It is noted that application of Ligfol salutarily influences old, weak animals. Owners often complain that the animals are languid, eat badly, are passive, without visible reasons. After 2-3 injections, appetite improves, activity appears, the animal even starts to play. Ligfol allows keep stable form.

MYXOMATOSIS

Data from THE magazine Rabbit breeding and fur farming № 12006

Article: “Development of myxomatosis on rabbit-breeding farms of the Belgorod and Voronezh regions and experience of prevention of possible complications.”

Extract:
“... In some cases, as an experiment for increase of resistance, reduction of negative consequences of the illness, and also as a powerful antioxidant and immunomodulator, I.N.Kudrjavitsev, a leading veterinary in Krasnogvardeyski region, successfully used Ligfol (9337-01-1829066501) in a
dosage of 1 ml, according to “Instructions on application … “ approved 5/3/2001. The preparation not only accelerated recovery of sick rabbits, but frequently even prevented occurrence of myxomatosis signs …”

METHODICAL RECOMMENDATIONS ON GUMIVAL (FODDER ADDITIVE) APPLOCATION IN DECORATIVE POULTRY FARMING

GENERAL DATA

GUMIVAL is a fodder additive developed on the basis of sodium and potassic salts of humic acids (from 60 to 90 % of reactant), for increase of reactance of the organism influenced by adverse factors of the environment. Does not contain gene-modificated organisms (GMO). Gumival is a powder from dark-brown to black color, with the size of particles not exceeding 2 mm, soluble in water, well distributed in forage. Long-time application does not cause accustoming, toxic and allergic reactions, infringements in metabolism. By-effects and complications after application of Gumival were not revealed, except for individual intolerance.

PACKING

Issued packed by 0.25; 0.5; 1.0; 5.0 kg, in polyethylene packages, in multilayered paper or polymeric bags.

STORAGE CONDITIONS

The fodder additive should be stored in the package of the manufacturer, at temperature from 5°C up to 25°C, in dry place protected from direct solar rays, pollution and mechanical damage.

USEFUL LIFE of the fodder additive - 2 years from the date of manufacturing.
**GUMIVAL PROMOTES:**

Ø Correction of immunodeficiency conditions.
Ø Detoxication and decrease in negative consequences of mycotoxicosis, poisoning with vegetative poisons and medical products, smog, smoke blanketing, etc.
Ø Deducing of heavy metals from the organism.
Ø Increase of safety of nestlings.
Ø Normalization of reproductive function of males and females.
Ø Normalization of the liver function (hepaprotectoral action).
Ø Strengthening of resistibility to stressful factors and shortening of adaptable period connected with accustoming to a new place of dwelling, change of attendants, conditions of maintenance, transportation, cutting of the feather.
Ø Improvement of digestion process and forage assimilability.
Ø Effective preparation and achievement of maximal results at exhibitions and competitions.
Ø Restoration after the diseases, antibacterial therapy, intensive load.

**MECHANISM OF GUMIVAL’S ACTION**

Researches showed that GUMIVAL influences on increase of natural resistance of the organism (phagocytosis, lysozyme and bactericidal activity of blood serum), increases content of albuminous $\gamma$-globulin fractions of serum protein. GUMIVAL strengthens detoxicational function of the liver (activation of fermental systems), stimulates gas-energy exchange in the organism, raises activity of oxidation-reduction enzymes (catalase, peroxidase), and increases oxygen capacity of blood.
Strengthening of anabolic processes occurs due to better assimilability of forages. Adsorbs mycotoxines and heavy metals.

**GUMIVAL DOSAGE SCHEDULE**

During 21 days - daily application, then – 10- day break. Number of courses is not limited. Correction of the daily doze is made every 10 days, according to dynamics of putting on weight. Gumival Single doze (on one feeding) should not exceed 25 mg/kg of weight. In 1 ml of mother solution 25 mg of Gumival is contained.

**DOSAGE**

20-25 mg/kg of the bird’s weight a day.

**METHOD OF GUMIVAL APPLICATION**

Fodder additive GUMIVAL is added to the ration individually or by a group way mixed with forages, and also with drink, adding mother solution in drinking water. For achieving homogeneous mixing of Gumival with forage, a rated doze of the forage is preliminary mixed with a small amount of the forage. Then the volume of the forage is increased to the set quantity.
PREPARATION OF WATER (MOTHER) SOLUTION (AT 60 % OF REACTANT)

Open the package and pour a necessary quantity of Gumival into a pot with cold water, at the rate of: 0.25 kg of Gumival on 6 litres of cold water.

Mix Gumival with water and leave for 12 hours for infusion. Before application, pour the over-sedimentary liquid through a filtering fabric.

For preparation of mother solution it is necessary to use pots made from food plastic, enameled or stainless steel. *Use of aluminum and zinked containers is forbidden!*

Ready mother solution is stored in a screw-top bottle with dark glass, for no longer than 7 days.

### Preparation of solution of smaller volume

<table>
<thead>
<tr>
<th>Measure</th>
<th>Gumival weight, grams</th>
<th>Quantity of water for preparation of the solution, ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ of a teaspoon</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>Teaspoon without a hill</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Table spoon without a hill</td>
<td>10</td>
<td>250</td>
</tr>
<tr>
<td>Glass 200 g.</td>
<td>203</td>
<td>5075</td>
</tr>
</tbody>
</table>

Interval between application of GUMIVAL and other medications should make not less than 4 hours, because adsorption of the other medical products is possible.

*In cases of severe diseases*, immunodeficiency conditions,
raised predisposition to stresses, at vaccination (for increase of the immune answer to vaccines and prevention of post-vaccination complications) and traumas, it is recommended to do intramuscular injection of LIGFOL in a dosage of 0.1 ml/kg.
1-3 days prior to or simultaneously with vaccination, in different syringes.
In other cases, 1-2 injections with a 48-hour interval.

**COSE EFFECTIVENESS OF GUMIVAL**

- Reception of additional profit due to decrease in diseases, loss of birds and nestlings.
- Decrease in expenses for purchase of medical products. Economy of forages achieved due to their better assimilability.