Optimal Alternative of Antibiotics—Antimicrobial Peptide

Ecotide

Sichuan Rota Bioengineering Co., Ltd
## Wish Your Feed
### As HEALTHY & NUTRITIONAL As Breast Milk

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Breast milk</th>
<th>Feed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>Casein, Whey protein etc.</td>
<td>Soya bean, Fish meal, Amino acid etc.</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>Lactose</td>
<td>Corn etc.</td>
</tr>
<tr>
<td>Fat</td>
<td>Animal fat, Phospholipid etc.</td>
<td>Plant fat, Mixed lipid etc.</td>
</tr>
<tr>
<td>Mineral</td>
<td>Organic trace mineral etc.</td>
<td>Organic &amp; Inorganic trace mineral</td>
</tr>
<tr>
<td>Bioactive</td>
<td>Antimicrobial peptides, Lactoferrin,</td>
<td>Antibiotics, Plasma protein powder,</td>
</tr>
<tr>
<td>substance</td>
<td>Immune globulin etc.</td>
<td>Enzymes, Probiotics etc.</td>
</tr>
<tr>
<td></td>
<td>Growth factor, Cytokine etc.</td>
<td>Yeast extract, Essential oil, Probiotics etc.</td>
</tr>
</tbody>
</table>

## Summary

- **Healthy feed** should provide beneficial ingredients, reduce material negative side effects

- **Healthy gut** balanced system should consist of micro-ecological environment balance, nutrition balance and immune balance. Building a healthy gut immunity is the first key for the whole system balance

- **Healthy gut** is a system, it demands systematic solutions to achieve.
**Antimicrobial Peptides**

- **Kill** pathogenic microorganism directly
- **Recruit** immune cells, regulate mucosal immune response
- **Combine** endotoxin, reduce diarrhea
- **Reduce** inflammation, lessen chronic inflammation's influence for animal growth

---

**Antimicrobial Peptides**

- **Origin**: Plant, Animal
- **Production**: Gene code, Ribosome biogenesis peptide
- **Antimicrobial mechanism**: Membrane Permeabilization
- **Function**: Killing and immunomodulation as part of body immune system
- **Efficiency**: Long term
- **Drug-resistance**: Not reported
- **Environmental problems**: No residue, green and natural

**Antibiotics**

- **Origin**: Microorganism
- **Production**: Nonribosomal, Chemosynthesis
- **Antimicrobial mechanism**: Inhibit biochemical pathways of microbes
- **Function**: Killing and immune inhibition as unnatural substance in body
- **Efficiency**: Temporary
- **Drug-resistance**: Multi-drug resistance bacteria
- **Environmental problems**: Residue in environment

---

Are you missing **IMMUNE BALANCE**?

Your best choice--- **ECOTIDE**
Antibacterial Experiment of Standard Strains

E. Coli 10389
1. C AMP concentration
0.3mg/L, 0.15mg/L

Staphylococcus aureus 10201
1, 2, 3 AMP concentration
0.3mg/L, 0.2mg/L, 0.1mg/L
M AMP Standard Product Pb
AMP fermentation liquid

Synergistic Effect with Antibiotics

- Virginiamycin
- Enramycin
- Chlortetracycline
- Kitasamycin
- Oxytetracycline
- With Olaquindox
  Escherichia Coli
- With Enduracidinon
  Clostridium Welchii
- With Celistin Sulfate
### Zone of Inhibition Test by Thailand Kasesart University

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Clear zone formation (CM)</th>
<th>Ecotide (Unit/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>50</td>
</tr>
<tr>
<td>S. Suis 020</td>
<td>-</td>
<td>1.1</td>
</tr>
<tr>
<td>S. suis 026</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>S. suis 021-3</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>E.coli 628</td>
<td>-</td>
<td>1.2</td>
</tr>
<tr>
<td>E.coli 513</td>
<td>-</td>
<td>1.4</td>
</tr>
<tr>
<td>E.coli 750</td>
<td>-</td>
<td>1.3</td>
</tr>
<tr>
<td>Salmonella typhimurium 618-2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Salmonella typhimurium gr.23</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Salmonella typhimurium 745.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vibrio Cholera gr.23</td>
<td>-</td>
<td>1.4</td>
</tr>
<tr>
<td>Vibrio Cholera gr.A</td>
<td>-</td>
<td>1.6</td>
</tr>
</tbody>
</table>

### Efficacy

This product is mainly to improve intestinal health. Stimulating animal immune response; Maintaining intestinal microecological balance; helping animal intestine develop; Decreasing diarrhea rate. It's advised to use together with antibiotics, which has good synergistic effect.

1. Stimulating immune response, improving animal immunity, enhancing animal disease-resistance;
2. Maintaining intestinal microecological balance, helping intestine develop;
3. Broadly kill and inhibit microbe. Like G⁺, G⁻, porcine circovirus, Swine fever virus and some fungi;
4. Advanced preparation technology, high stability and thermostability, which can be applied in feed processing;
5. Green & friendly environment; Safe, no residue.