



PERFLYBIO™

# PerGABA

## Mixed Feed Additives

Anti-stress Agent and Appetite Enhancer



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PerGABA is the powerful anti-stress agent and efficient appetite enhancer for animal use, produced by Hunan Perfly Biotech Co., Ltd.

### Applicable Objects //



PIG



CHICKEN



DUCK



FUR ANIMAL

### Composition //

GABA, vitamins, electrolyte balance agents.

### Animals Stress and PerGABA //

Stress is a summation of nonspecific response produced by the animal organism when they face the various stimuli. All these stimulating factors can be collectively called as stressor or stress factor. Considering that stress is everywhere in modern breeding industry, and it mainly has the negative effects on the production performance, so the anti-stress issue is an unavoidable problem to all practitioners in feed industry, animal husbandry and aquaculture.

So, what is the physiological process of stress? What is the mechanism process of PerGABA?

#### 1. The physiological process of stress

Through HPA and SAS, the stimuli caused by stressors (from the external, the internal and nerve) are to be conducted by nerve, triggering the secretion of hormones (see Figure 1. and Figure 2.). Secreted hormones enter the body and accelerate the catabolism. (see Figure 3.) Catabolism triggers the accumulation of acidic metabolites and free radicals. Excessive free radicals attacking cell membrane can cause cell membrane permeability to change. The series of chain reactions result in environmental degradation and electrolyte balance destruction in the body.

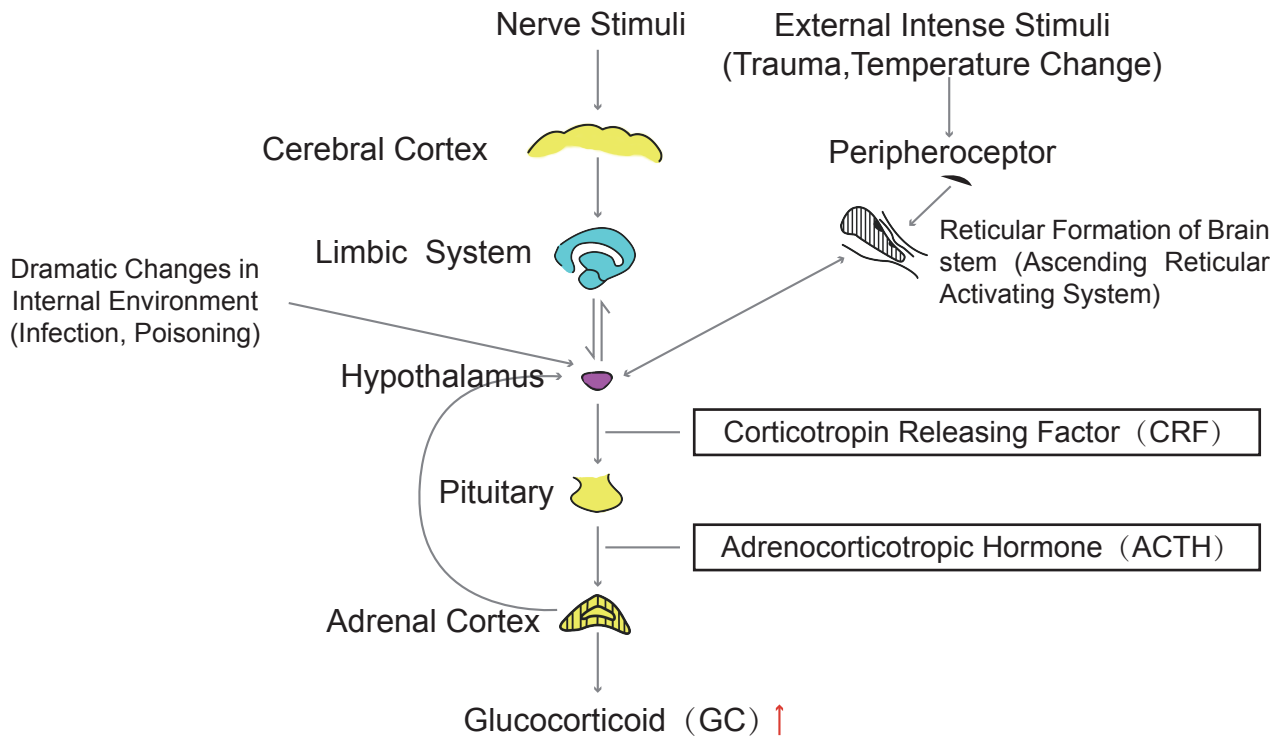


Figure 1. Hypothalamic-Pituitary-Adrenal (HPA) Axis

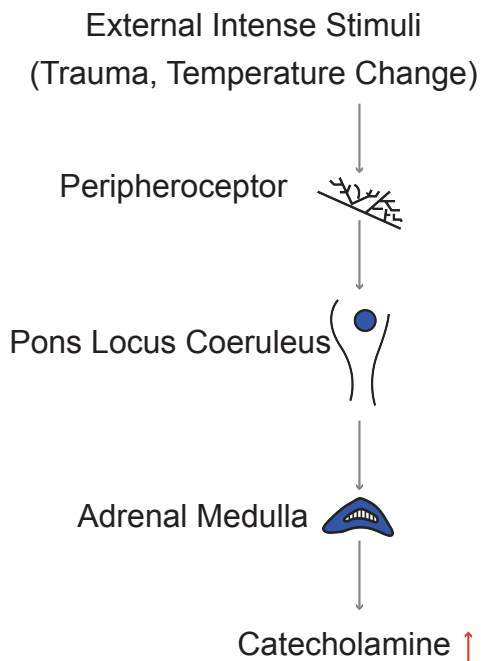


Table 1. The Effect of Catecholamine on the Body's Hormone Secretion

Hormone	Effect	Receptor
Adrenocorticotrophic Hormone	Promote	$\beta$ , $\alpha$ (?)
Glucagon	Promote	$\beta$ , $\alpha$ (?)
Insulin	Promote	$\alpha$
Auxin	Promote	$\alpha$
Thyroid Hormone	Promote	$\beta$
Parathyroid Hormone	Promote	$\beta$
Calcitonin	Promote	$\beta$
Renin	Promote	$\beta$
Erythropoietin	Promote	$\beta$
Gastrin	Promote	$\beta$

Figure 2. Sympathetic-Adrenomedullary System (SAS) Axis

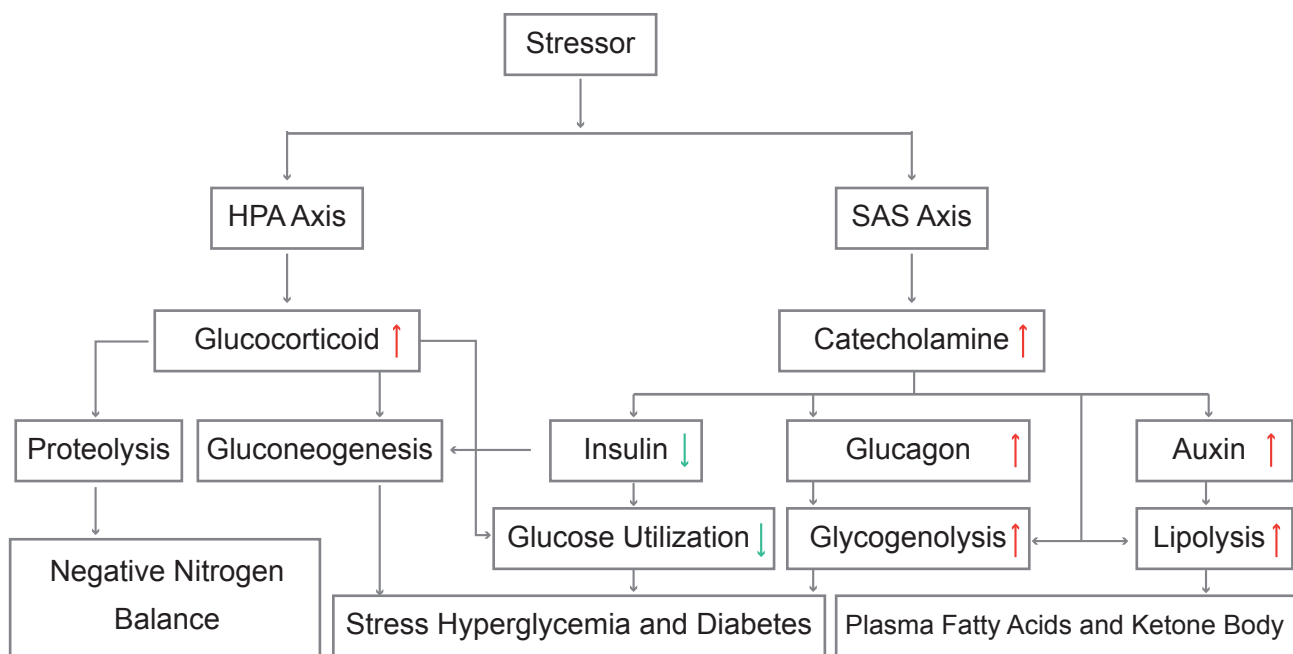


Figure 3. The Effects of Stress on Organism Metabolism

## 2. PerGABA weakens the neurotransmission of stress to achieve the anti-stress effect

PerGABA is an inhibitory neurotransmitter. Through weakening “neurotransmission” or “hormone secretion”, PerGABA can reduce the degree of stress to play the role of anti-stress.

## Animals Feed Intake and PerGABA //

### 1. The decisive factors of animal feed intake

Animals “feed intake” depends on two factors:

- ① One is the problem whether animals want to “eat”: if they have no appetite, no matter feed how good palatability is, feed intake could not increase. It is common that the decline in appetite leads to the decrease of feed intake for raising animals when they are in “stress”, such as, after piglets weaning, poultry in stress, etc.
- ② The other is the problem whether the feed is “delectable”: it is related to fodder’s color, smell and taste. If fodder’s palatability is good, animals’ feed intake is able to go up on the condition that animals have an appetite.

## 2. An appetite enhancer – PerGABA

The traditional “allicin”, “sweetener” and “flavor” mainly enhance fodder’s color, smell and taste in fodders, which cannot stimulate and regulate appetite from inside.

In contrast, PerGABA can act on animals feeding center of the hypothalamus or inhibit satiety center to promote the secretion of neuropeptide Y and to strengthen “appetite”, as a result, the feed intake is improved. So, PerGABA is a central “appetite enhancer” for animals use.

### **Action Mechanism //**

**1** PerGABA combines with the postsynaptic membrane surface receptors to activate  $\text{Cl}^-$  channel. A large number of  $\text{Cl}^-$  entering into the postsynaptic membrane can cause the re-excitation threshold to increase. Eventually the ability of nerve system to conduct excitation decreases. Animals are less sensitive to stimulation of stressor.

**2** PerGABA can inhibit HPA axis. Through weakening the secretion of glucocorticoid (GC), PerGABA reduces the animals’ response to stimulation of stressor.

**3** The animals’ appetite is controlled by the hypothalamus, the hypothalamus has “feeding center” and “satiety center”; PerGABA can also directly stimulate “feeding center” and inhibit “satiety center” to promote the secretion of neuropeptide Y and to improve the “appetite”, as a result, it plays a role of “enhancing appetite” or “physiological attraction”.

**4** Through the cholinergic nicotine channel or calcium channel, PerGABA plays a specific role of relaxation of gastrointestinal blood vessels. Therefore, there is increase in gastric mucosal blood flow to counteract gastrointestinal vascular contraction when the stress happened; meanwhile, along with reducing the generation of free radicals, PerGABA prevents the damage of the gastrointestinal mucosa. The reduction of free radicals also can reduce the damage to animal immune organs to improve the animal immunity under the condition of stress.

**5** PerGABA plays the roles of decreasing the body temperature, promoting fat synthesis, inhibiting the catabolism to reduce the metabolic acid production and the generation of free radicals; at the same time, the plant extracts, various vitamins and electrolyte balance agents in products play a role of balancing the organism internal environment.

**6** PerGABA is a kind of mixed feed additive. With low plasma protein binding rate and high fat-soluble, main efficacy components of PerGABA are easy to penetrate into the physiological barrier to enter into the various tissues of organism, which plays a maximum role for better performance.



## Efficacy //

**1** PerGABA reduces breeding animals the sensitivity to stressor and reduces the degree and incidence of many types of stress, including:

① Raising Management Stress: cutting teeth, broken beak, docking, weaning, moulting, weaning, piglets failed to keep warm, changing pool, changing feed, non-performing fodder, feed transportation and slaughter, etc.

② Veterinary Treatment, Immunization Programs Stress: injection, medicine infusion, vaccination, etc.

③ The Environment Stress: high temperature in summer, weather change in autumn and winter, harmful wind, noise, etc.

**2** PerGABA weakens nerve conduction and reduces the tension of animals to reduce irritation, fighting, pigs arch bar, biting tail, pecking feathers, pecking anus, and other abnormal behaviors. It makes animals feel more comfortable.

**3** Through stimulating feeding center and inhibiting satiety center, PerGABA plays a role of increasing an appetite to increase feed intake. PerGABA reduces the phenomenon of the decline in animals feed intake caused by feed ingredients cheap, quality fluctuation and high temperature in summer.

**4** PerGABA prevents gastrointestinal mucosa damage and improves the feed utilization rate; it inhibits catabolism and reduces energy consumption to improve daily gain; it improves the body's immune function and strengthens the ability to resist disease for reducing the disease happened.

**5** PerGABA reduces the incidence of yellow fat meat and weakens the PSE, DFD meat caused by the stress to improve the quality of livestock and poultry products.

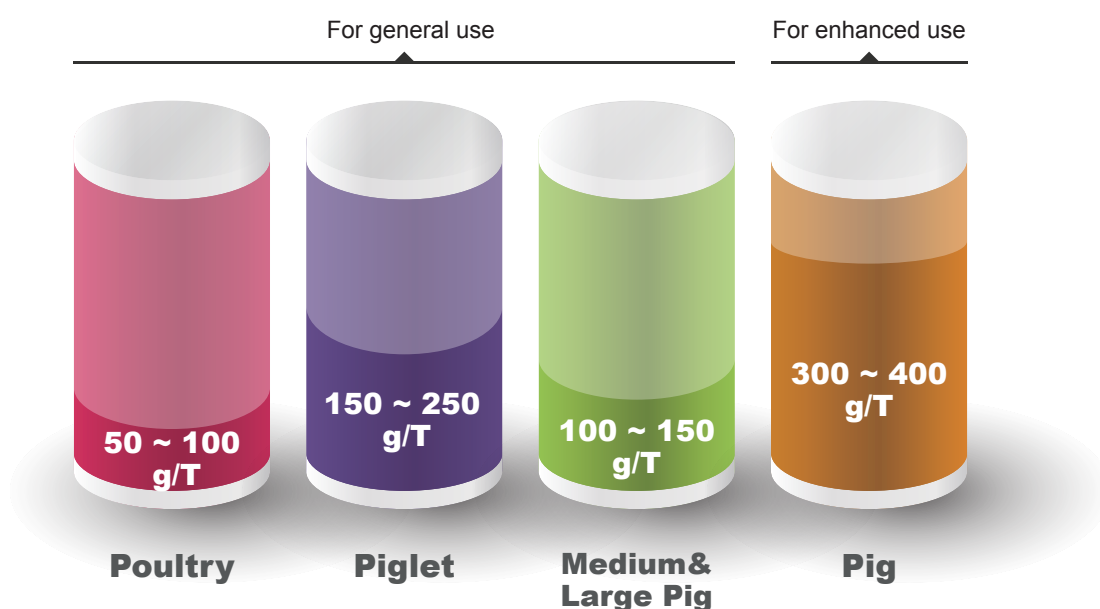


## Application //

- 1 The product has both anti-stress and feed intake stimulating effect, especial for pigs, poultry, fur-bearing animals, etc.
- 2 This product can be used in compound feed, concentrated feed, and premixes.

## Usage & Dosage //

- 1 Per T fodder allowed to add this product:  
Concentrated feeds, premixes are in proportion to add this product after conversion:



- 2 In order to ensure uniformity in the feed, the use of this product need to be premixed firstly, and then gradually added to the follow-up feed.

Note: This product is used as soon as possible after unpacking, the remaining parts need to tie up and keep in dark place.


## Packaging & Storage //


- 1 This product is packaged in a bag or barrel, the net weight of product is 25kg, and details see the package label.
- 2 Keep away from heat, moisture and direct sunlight, not with toxic and harmful substances mixed.
- 3 Under the condition of original package, the shelf life is 12 months.





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