Uplift intestinal resilience against *Lawsonia intracellularis*

如何增强肠道对胞内劳森菌的抵抗力

演讲人：许平平

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2024年4月11日

猪消化道疾病国际研讨会
International Pig Digestive Diseases Symposium

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Lawsonia intracellularis is ubiquitous
胞内劳森菌无处不在

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	Between-herd prevalence (finishers) 群体间患病率（育肥）	Within-herd prevalence (finishers) 群体内患病率（育肥）	Prevalence of lesions 病变发生率	Reference (number of farms, technique)
	100%	79%		Xiao, 2022, Vet Microbiol (79 farms, ELISA)
	100%	34%		Yulong, 2022, Proc. IPVS 2022 (43 farms, ELISA)
	85%	61%		Nuntapaitoon, 2021, Thai J. Vet. Med (20 farms, PCR)
	100%	56%	61%	Dung Nguyen, 2023, Proc APVS 2023 (40 farms, ELISA)

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Lawsonia intracellularis robs profit on farm
胞内劳森菌影响猪场的收益

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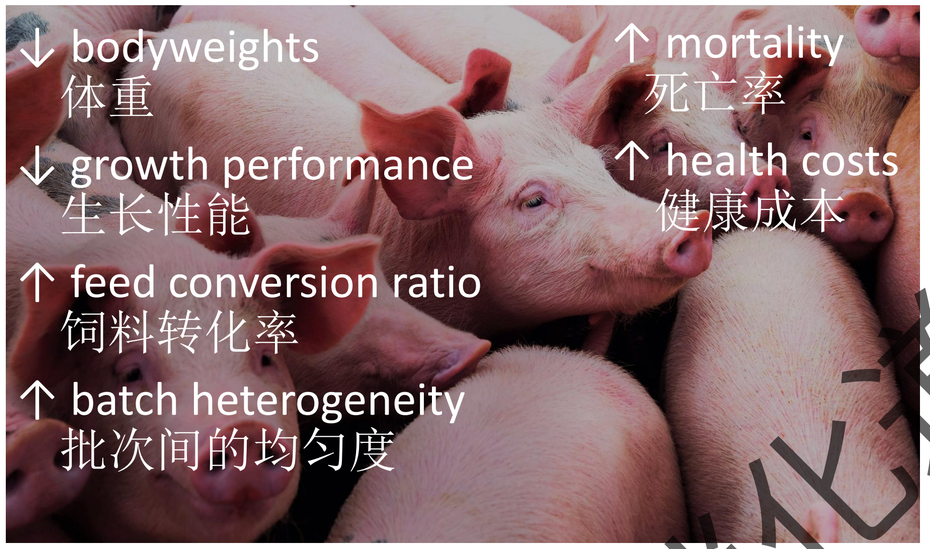
Impact on pig performance
影响猪的生长性能



Impact on farm profit
影响猪场收益

Cost of growth delay and feed conversion efficiency reduction:
生长延迟和饲料转化效率降低的成本:

Mild ileitis 慢性回肠炎

ADG ↓ 3%, FCR ↑ 7%
Mortality 死亡率=

-5.98 USD per pig 每头猪

Severe ileitis 急性回肠炎

ADWG ↓ 19%, FCR ↑7%
Mortality 死亡率 ↑ 1%

-16.94 USD per pig 每头猪

+

additional cost of disturbance in feeding and marketing pigs
饲养成本增加以及售猪也会增加难度

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Holtkamp D. 2019. MSD edition

Proven efficacy
试验分享

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一

Field trial in growing/finishing pigs naturally exposed to *Lawsonia intracellularis* 在生长/育肥猪中自然暴露于胞内劳森菌的农场试验结果

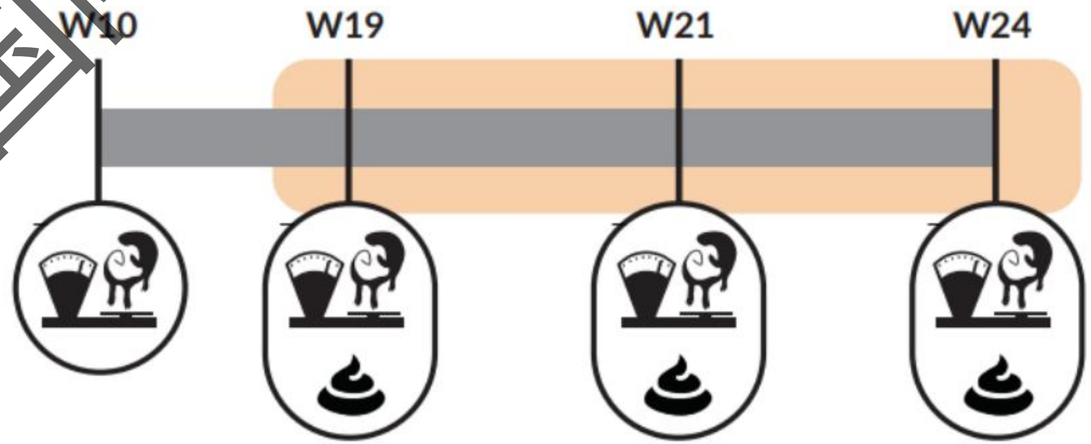
Spanish fattening operation purchasing all pigs from the same source

西班牙育肥场 固定购买源

	Control	Safglucan (250g/ton)
Number of pigs 猪数	80	80

Age (weeks) W10 — Experimental feed试验料 — W24

Natural circulation of *Lawsonia intracellularis*
胞内劳森菌的自然周期



→ *Lawsonia intracellularis* shedding

→ 胞内劳森菌脱落

→ Metagenomic analysis

→ 宏基因组分析

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Rhayat et al. 2023. Front. Anim. Sci.

Safglucan reduces *Lawsonia intracellularis* shedding
赛福葡聚糖降低胞内劳森菌的脱落

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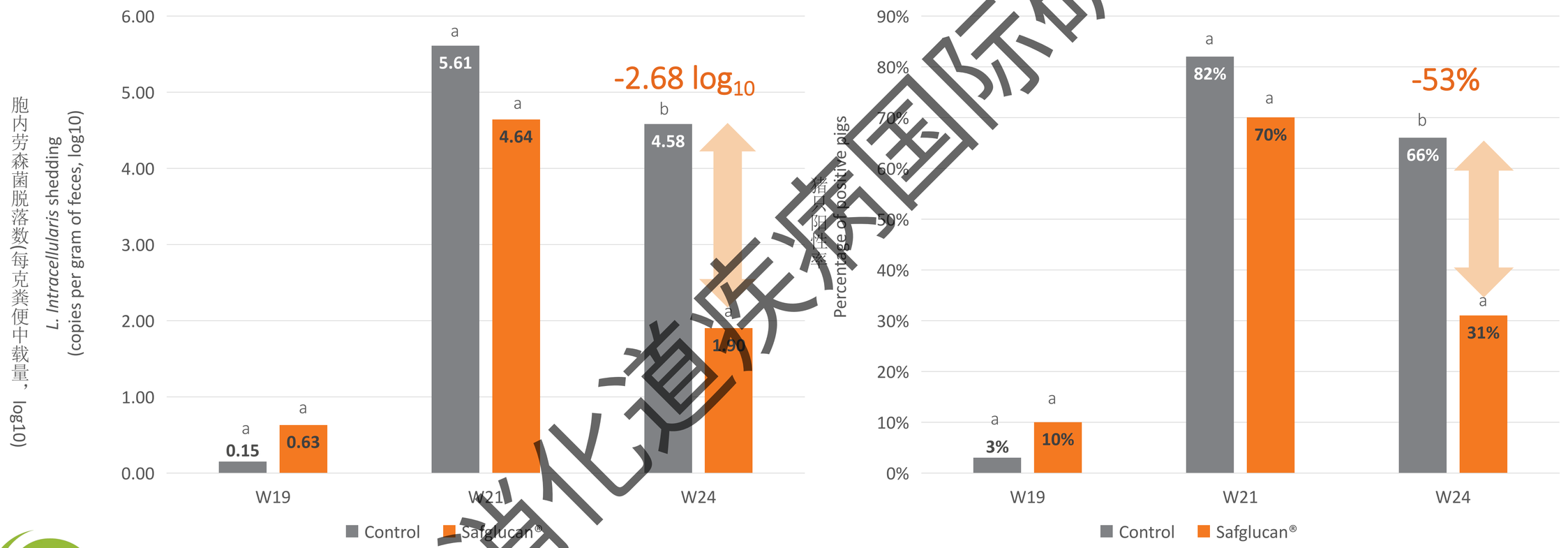
Fecal shedding

赛福葡聚糖对胞内劳森菌感染猪的粪便脱落的影响



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a, b: different letters indicate statistical significance (p<0.05)

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Safglucan improves growth performance
赛福葡聚糖提高生长性能

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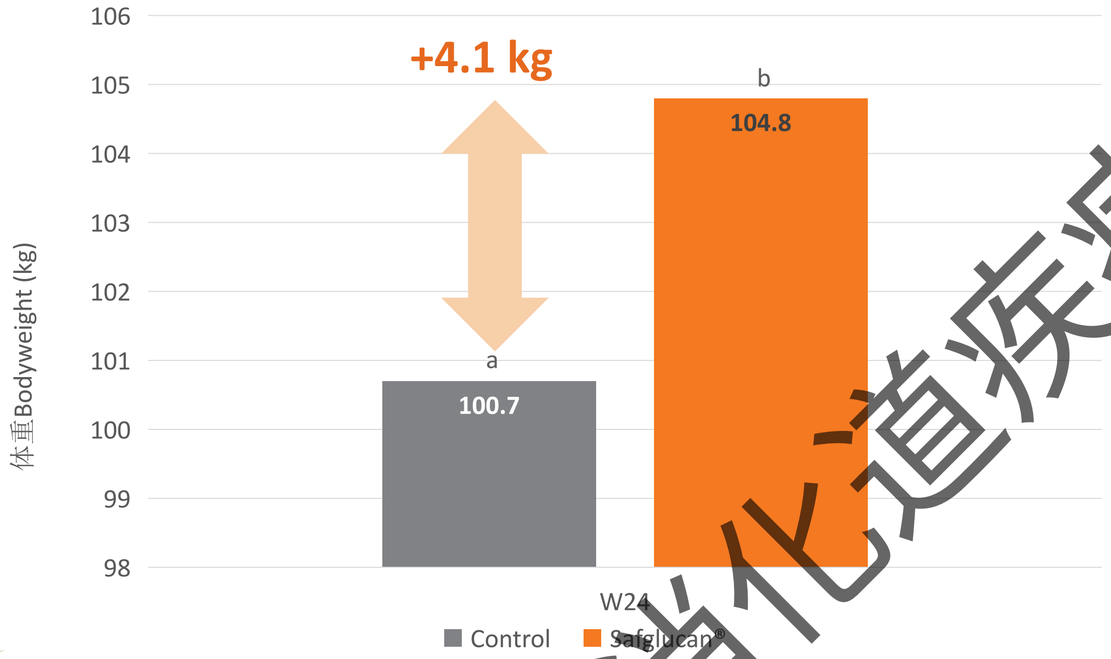
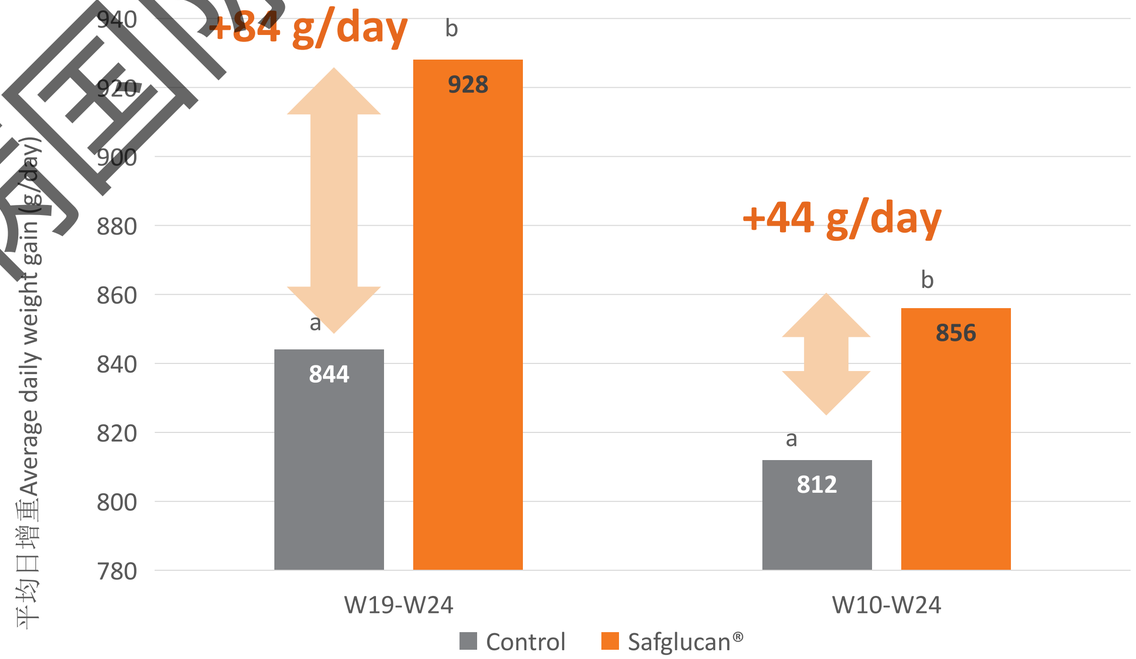
Bodyweights

赛福葡聚糖对自然感染胞内劳森菌猪体重的影响



Growth

赛福葡聚糖对自然感染胞内劳森菌猪生长的影响



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Safglucan helps pigs reach their final weight
赛福葡聚糖帮助猪达到理想体重

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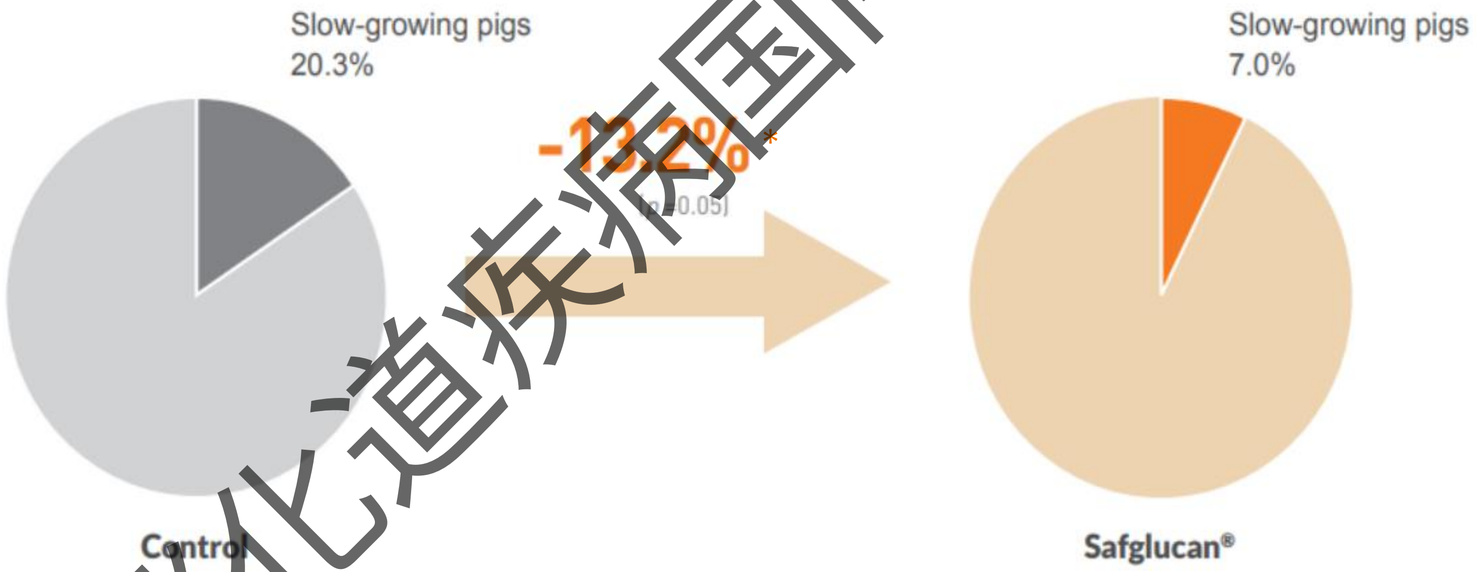
Effect of Safglucan® on the prevalence of slow-growing pigs at 24 weeks of age

赛福葡聚糖®对24周龄生长缓慢猪情况的影响



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*Low bodyweight at 24 weeks of age: <92kg
24周龄体重低：<92kg

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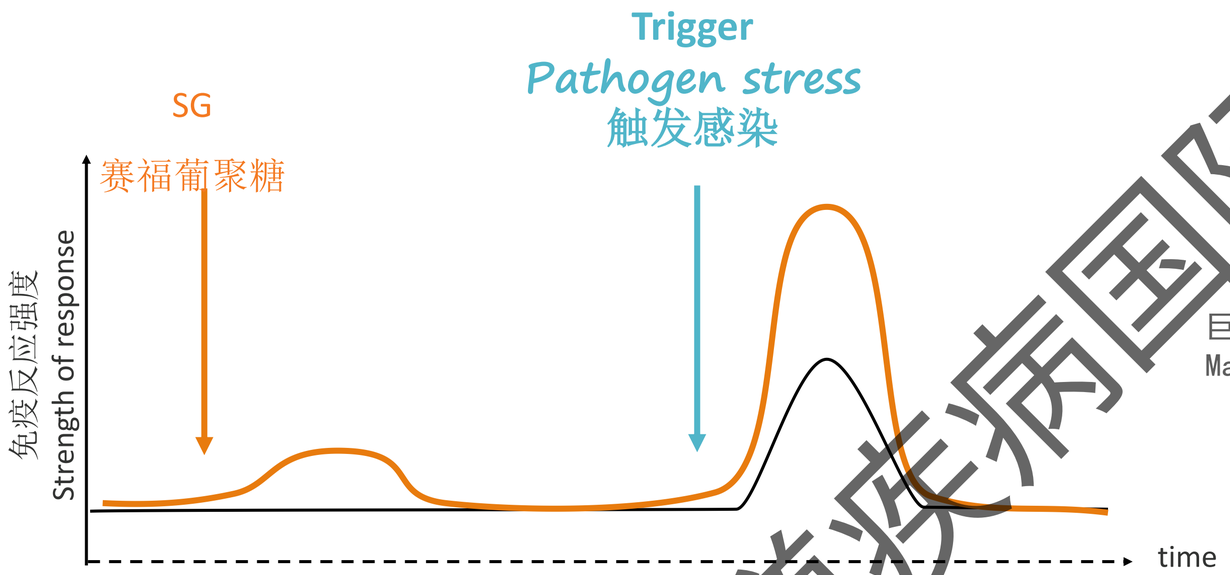
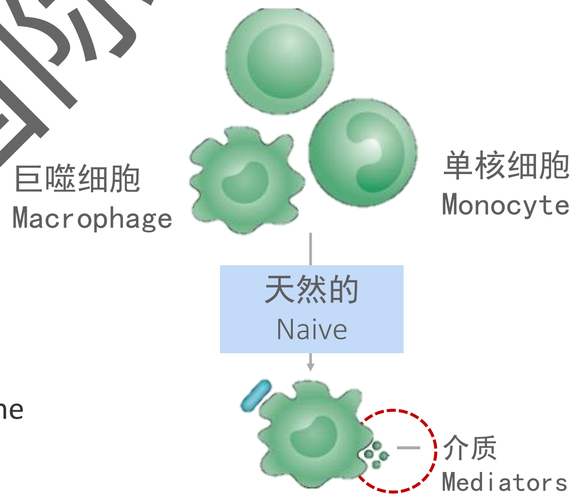
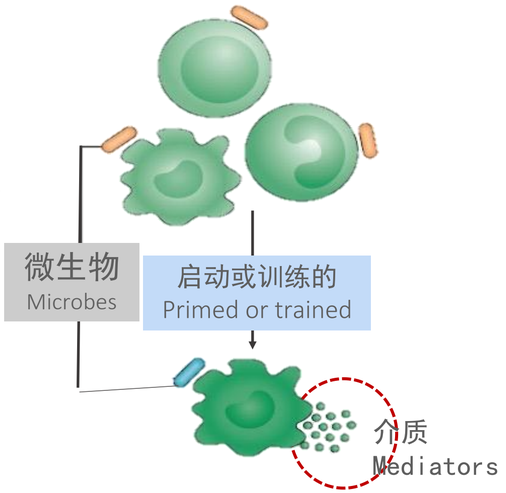
Mode of action: immune training
作用方式:免疫训练



SG赛福葡聚糖
诱导先天性免疫

Control传统方法
诱导先天性免疫





Enhanced immune responses in animal
增强动物免疫反应

Goodridge, 2016, Nature Immunol
Netea, 2017, Cell Host microbes

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Mode of action: immune training
作用方式:免疫训练

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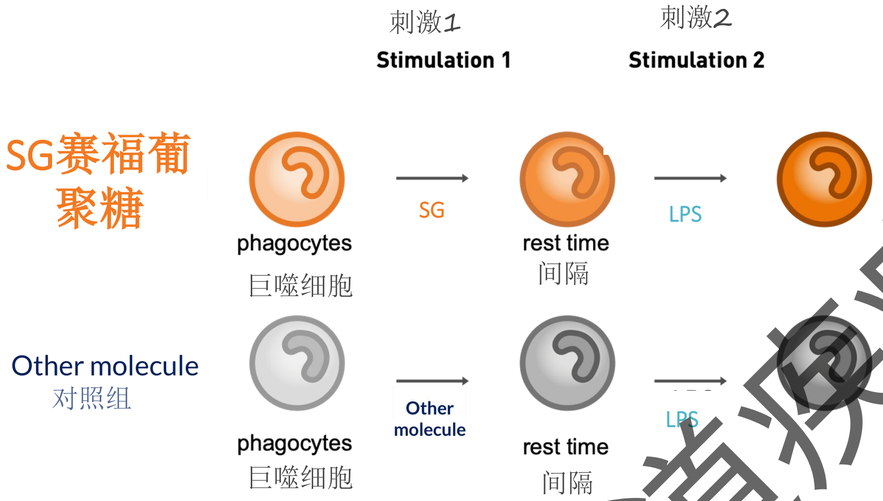
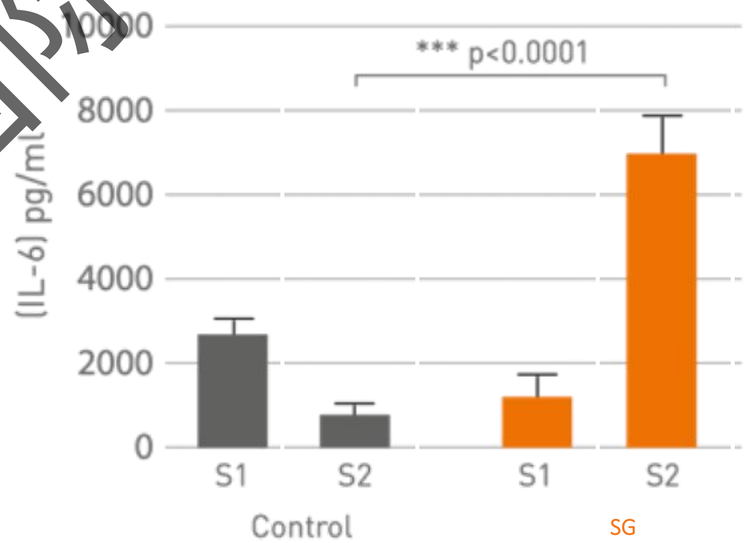
Method
作用方式



Results
结果



Effective at training immune cells
赛福葡聚糖有效训练免疫细胞

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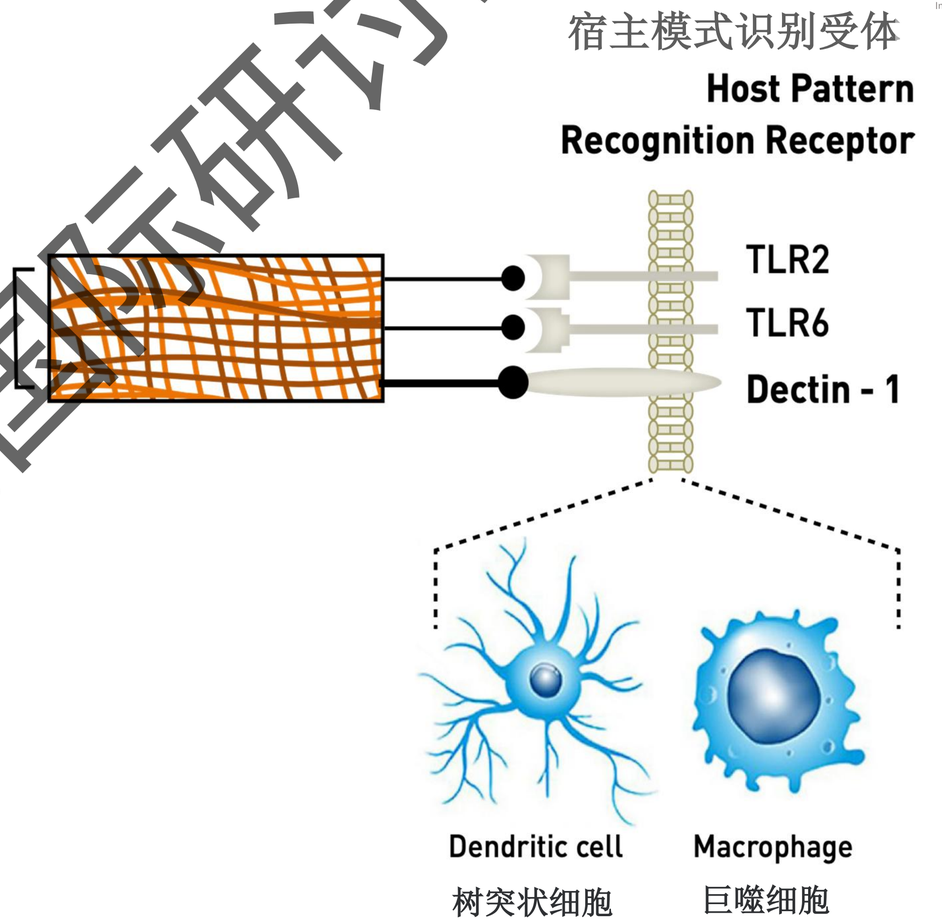
Immune training is mediated by the Dectin-1 receptor
免疫训练是由Dectin-1受体介导

- Recognition by a membrane receptor (Dectin-1) located on the surface of phagocytes (innate immune cells).

  赛福葡聚糖触发位于吞噬细胞(先天免疫细胞)表面的一些受体(Dectin-1)。

- Induction of an epigenetic reprogramming of immune cells, allowing them to release cytokines. in a faster and stronger response to a pathogen contact.

  赛福葡聚糖诱导免疫细胞的表观遗传重编程，使它们释放细胞因子。对病原体的接触做出更快更强的反应。



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Conclusion
总结

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- *Lawsonia intracellularis* is ubiquitous and **robs profit on farm** in China and elsewhere.
  胞内劳森菌在中国无处不在并影响农场收益

- Safglucan has demonstrated its **proven efficacy** against *Lawsonia intracellularis* to improve growth performance
  赛福葡聚糖是针对胞内劳森菌的有效解决方案，可以提高猪的生长性能

- **Innate immunity cells are trained** in the event of a pathogenic stress such as *Lawsonia intracellularis* infection
  先天免疫细胞在发生致病性应激(如劳森菌感染)时受到训练

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1个使命
10,700 员工
10 R&D 研发中心
16 生产基地
78 商业网点
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