

# Ractopamine

Ractopamine		
[[Image:Ractopamine.png]]		]]
Identifiers		
CAS number	90274-24-1 <sup>[1]</sup>	
PubChem	56052 <sup>[2]</sup>	
ChemSpider	50604 <sup>[3]</sup> ✓	
MeSH	Ractopamine <sup>[4]</sup>	
ChEMBL	CHEMBL509336 <sup>[5]</sup> ✓	
Properties		
Molecular formula	C <sub>18</sub> H <sub>23</sub> NO <sub>3</sub>	
Molar mass	301.38	
✓ (what is this?) (verify) <sup>[6]</sup> Except where noted otherwise, data are given for materials in their standard state (at 25 °C, 100 kPa)		
Infobox references		

**Ractopamine** is a drug that is used as a feed additive to promote leanness in pigs raised for their meat. The feed additive Paylean, produced by the U.S. company Elanco Animal Health, owned previously by Eli Lilly and Company, contains ractopamine hydrochloride. Paylean was approved by the United States Food and Drug Administration on December 22, 1999, and has also been approved in more than 20 countries, including Australia, Brazil, Canada, Mexico, and Thailand.<sup>[7]</sup> However it is banned in 150 other countries, including the European Union<sup>[8]</sup>, China, and Malaysia, which prohibited its use in 2002.<sup>[9]</sup>

Ractopamine in feed for animals is responsible for dramatic muscle growth, yet it is not a steroid or hormone, but rather a compound known as a beta agonist. Only a trace amount of ractopamine need be added for a marked increase in protein and decrease in fat accretion in animals, in particular swine. For the last 90 pounds of live weight gain, a mere 18.5 grams of ractopamine added to a ton of feed (20 ppm) will increase protein by 24% and decrease fat by 34%.<sup>[10]</sup>

## International Controversies

### China

In July 2007 Chinese officials seized U.S.-produced pork for containing ractopamine residues.<sup>[11]</sup> Further shipments of ractopamine fed pork were seized in September, though this time they were Canadian in origin.<sup>[9]</sup>

### Taiwan

Ractopamine has been banned in Taiwan since 2006.<sup>[12]</sup>

In the summer of 2007, the substance caused considerable controversy in Taiwan. Two U.S. shipments including ractopamine-laced pork were rejected by Taiwan's health authorities, while the Taiwan government had been considering lifting the ban on such imports.<sup>[13]</sup> This resulted in mass protests in the capital of Taipei by swine

farmers insisting that the ban remain in place. Department of Health Minister Hou Sheng-mou (侯勝茂) declared that there would be no lifting of the ban unless related laws were amended.

## Malaysia

According to the Malaysian Food Act 1983 and Regulations (as of 5th January 2010), ractopamine is allowed in pig muscle and fat (MRL of 10 ppb), pig liver (MRL of 40 ppb) and pig kidney (MRL of 90 ppb). (Fifteenth A Schedule, Table 1, Maximum Permitted Proportion of Drug Residues in Food).

Ractopamine is allowed as its half-life is lower, leading to reduced residues in the food, and the dose required to affect in humans is much higher than other beta agonists.<sup>[14]</sup>

On 30 December 2008, the Malaysian Veterinary Services Department quarantined 10 out of the 656 pig farms in Malaysia, as the livestock were found to contain the banned chemical.<sup>[15] [16]</sup>

## Psychological effects

Ractopamine has also been implicated in making pigs more susceptible to stress from being handled, with behavioural and physiological changes, and in making them more aggressive.<sup>[17]</sup>

## References

- [1] <http://www.commonchemistry.org/ChemicalDetail.aspx?ref=90274-24-1>
- [2] <http://pubchem.ncbi.nlm.nih.gov/summary/summary.cgi?cid=56052>
- [3] <http://www.chemspider.com/50604>
- [4] [http://www.nlm.nih.gov/cgi/mesh/2007/MB\\_cgi?mode=&term=Ractopamine](http://www.nlm.nih.gov/cgi/mesh/2007/MB_cgi?mode=&term=Ractopamine)
- [5] <https://www.ebi.ac.uk/chembl/db/index.php/compound/inspect/CHEMBL509336>
- [6] <http://en.wikipedia.org/wiki/%3Aractopamine?diff=cur&oldid=408778170>
- [7] Elanco products (<http://www.elanco.com/products.htm>)
- [8] " Effective monitoring for ractopamine residues in samples of animal origin by SPR biosensor and mass spectrometry ([http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6TF4-4RKMCS5-1&\\_user=10&\\_coverDate=02/11/2008&\\_rdoc=1&\\_fmt=high&\\_orig=search&\\_sort=d&\\_docanchor=&view=c&\\_searchStrId=1236203378&\\_rerunOrigin=google&\\_acct=C000050221&\\_version=1&\\_urlVersion=0&\\_userid=10&md5=4bc42fadf0748284a5a52e625f4551c3](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TF4-4RKMCS5-1&_user=10&_coverDate=02/11/2008&_rdoc=1&_fmt=high&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=1236203378&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=4bc42fadf0748284a5a52e625f4551c3))", Science Direct (2007)
- [9] " China stops imports from Canadian pork plant over banned additive (<http://canadianpress.google.com/article/ALeqM5g7tAT5wIEJcXoe-fg6E3ItRKS9ig>)", Canada Press (2007-09-19)
- [10] "Ractopamine, Response, Economics, and Issues (<http://www.ansc.purdue.edu/swine/porkpage/nutrient/paylean/ractopamine/sld001.htm>), Allan P. Schinckel, Purdue University
- [11] "China fights back, goes after U.S. meat" ([http://www.usatoday.com/money/world/2007-07-14-chinameat\\_N.htm](http://www.usatoday.com/money/world/2007-07-14-chinameat_N.htm)), USA Today, July 14, 2007.
- [12] Swine farmers get rowdy over ractopamine issue ([http://www.taiwannews.com.tw/etn/news\\_content.php?id=506889&lang=eng\\_news&cate\\_img=49.jpg&cate\\_rss=news\\_Society\\_TAIWAN](http://www.taiwannews.com.tw/etn/news_content.php?id=506889&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN))
- [13] [http://biz.yahoo.com/ap/070821/taiwan\\_pork\\_protest.html?v=1](http://biz.yahoo.com/ap/070821/taiwan_pork_protest.html?v=1) Taiwan Farmers Rally for U.S. Pork Ban
- [14] <http://thestar.com.my/health/story.asp?file=/2006/11/5/health/20061105091851&sec=health>
- [15] <http://www.thestar.com.my/news/story.asp?file=/2008/12/31/nation/2917634&sec=nation> theStar - Vet Dept seals 10 pig farms
- [16] [http://www.nst.com.my/Current\\_News/NST/Wednesday/National/2440550/Article/index\\_html](http://www.nst.com.my/Current_News/NST/Wednesday/National/2440550/Article/index_html) The New Straits Times - 10 pig farms quarantined
- [17] "THE EFFECTS OF RACTOPAMINE ON BEHAVIOR AND PHYSIOLOGY OF FINISHING PIGS" ([http://www.ars.usda.gov/research/publications/publications.htm?SEQ\\_NO\\_115=136591](http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=136591)), USDA Agricultural Research Service

## External links

- Ractopamine page (<http://www.inchem.org/documents/jecfa/jecmono/v31je09.htm>)
  - Paylean page (<http://www.albertapork.com/news.aspx?NavigationID=2147>)
  - Paylean page (<http://google.com/search?q=cache:Ufs8UHUU0ewJ:www.elanco.us/products/paylean.htm>)
  - Ractopamine study ([http://www.ars.usda.gov/research/publications/publications.htm?SEQ\\_NO\\_115=136591](http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=136591))
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