

Supplementary Table 1 Description of the four recent dose-responses used to be compared with our estimated response-curves to Trp

	Weight of piglets (kg)	Type of diet	Lys content (% of the diet)	Range of SID Trp:Lys tested (%)
Kluge <i>et al.</i> , 2010	11-30	Mix of cereals	1.05	15-23
Ma <i>et al.</i> , 2010	11-22	30% DDGS	1.20	12-20
Naatjes <i>et al.</i> , 2010	14-30	Wheat-barley	1.06	14-20
Naatjes <i>et al.</i> , 2010	14-30	Corn	1.15	16-21

SID Trp:Lys: Standardized ileal digestible tryptophan to lysine ratio; DDGS: Dried distillers grains with solubles.

Supplementary Table 2 *List of experiments used in the meta-analysis*

Author, date	Reference	Used experiment	Weight of piglets (kg)	Number of Trp levels
Adeola, 1996	<i>J. Anim. Sci.</i> 74:2411-2419	Basal diet + 3 reference diets supplemented with L-Trp	9.8-17.2	4
Ajinomoto, 2000	Trial report	Phase 2 and phase 3	12.8-19.4	4
Ajinomoto, 2004	Trial report	Dose-response with corn-based diets	12.5-25.7	5
Ajinomoto, 2008	Trial report	Experiment 1: 6- to 13-kg nursery pigs during phase 2	6.4-12.8	4
Baker <i>et al.</i> , 1971	<i>J. Anim. Sci.</i> 33:42-46	Assay 2: Basal diet + 4 treatments (basal diet supplemented with L-Trp)	10.0-13.5	5
Bikker <i>et al.</i> , 2001	Trial report 00NL01	Overall period: weeks 1-4	8.0-18.2	4
Boomgaardt and Baker, 1973	<i>J. Anim. Sci.</i> 36:303-306	Dose-response for 18% CP diets	11.3-21.4	5
Burgoon <i>et al.</i> , 1992	<i>J. Anim. Sci.</i> 70:2493-2500	Dose-response for starting pigs	6.2-14.5	6
Castaing <i>et al.</i> , 2002	<i>Journées de la Recherche Porcine.</i> 34:115-120	Overall trial period: 28 days	11.3-27.5	3
Danielsen and Fernandez, 2000	Trial report 00DK01	Diets 4, 5 and 6 (19% CP): weeks 0-4	8.4-19.5	3
Eder <i>et al.</i> , 2001	<i>Arch. Anim. Nutr.</i> 55:281-297	Experiment 1	7.5-17.2	4
Freire and Gaspar, 2002	<i>Alimentação Animal.</i> 42:22-25		9.9-25.3	3

Author, date	Reference	Used experiment	Weight of piglets (kg)	Number of Trp levels
Gracia, 2007	Trial report 06SP01	Overall period: from day 28 to day 42	7.7-10.1	3
Guzik <i>et al.</i> , 2002	<i>J. Anim. Sci.</i> 80:2646-2655	Experiment 4: phase II, overall period: from day 0 to day 14	6.3-10.2	6
Guzik <i>et al.</i> , 2005	<i>J. Anim. Physiol. Anim. Nutr.</i> 89:297-302	The 3 doses-responses are used, overall period: from day 0 to day 28	7.1-15.6	3
Hsia, 2005	<i>Asian-Aust. J. Anim. Sci.</i> 18:75-79	Trial 2: Meat and bone meal + Trp, overall period: weeks 1-8	6.0-29.6	3
Jansman, 1999 (Jansman <i>et al.</i> , 2010) ⁽¹⁾	Trial report 99NL02 (<i>J. Anim. Sci.</i> 88:1017-1027)	The 2 doses-responses are used, overall period: 29 days	11.4-27.5	3
Jansman <i>et al.</i> , 2005	Trial report 05NL01	The 2 doses-responses are used, overall period: from day 0 to day 28	9-24	4
Leibholz, 1981	<i>Aust. J. Agric. Res.</i> 32:845-850	Exp. 1 and Exp. 2, 28-56 days of age	6.4-13.3	4
Liu, 2000	Trial report	Dose-response: 16% to 24% SID Trp:Lys	7.1-21.4	5
Lynch, 1999 (Lynch <i>et al.</i> , 2000)	Trial report 99UK01 (Abstract: Annual EAAP Meeting)	Overall period: from day 11 to day 42	10.8-29.5	6
Lynch, 2001	Trial report 01UK01	Diets D, E, F. Overall period: from day 11 to day 41	11.0-29.4	3
Pérez and Solà-Oriol, 2008	Trial report 08SP02	Overall period: from day 0 to day 35	7.1-21.7	4

Author, date	Reference	Used experiment	Weight of piglets (kg)	Number of Trp levels
Pluske and Mullan, 2000	Trial report 00AU01	Exp. 1: Overall period, from day 1 to day 27	6.0-15.5	4
Roth, 2005 (Roth <i>et al.</i> , 2005)	Trial report 04GE01 (Abstract: Annual EAAP Meeting)	Overall period: from day 1 to day 47	7.2-24.7	5
Russell <i>et al.</i> , 1983	<i>J. Anim. Sci.</i> 56:1115-1123	Exp. 2: the 2 doses-responses are used	13.9-30.4	3
Sato <i>et al.</i> , 1987	<i>J. Anim. Sci.</i> 64:191-200	Exp. 2: L-Trp	10-20	3
Torrallardona, 2000	Trial report 00SP02	Overall period: from day 0 to day 35	8.3-26.6	4
Torrallardona, 2005	Trial report 04SP03		11.3-21.9	4
Torrallardona, 2007	Trial report 06SP03	Overall period: from day 0 to day 44	7.4-28.4	4
Weber, 2008	Trial report 08GE03	Overall period	8.6-19.0	4

J. Anim. Sci.: Journal of Animal Science; Arch. Anim. Nutr.: Archives of Animal Nutrition; J. Anim. Physiol. Anim. Nutr.: Journal of Animal Physiology and Animal Nutrition; Asian-Aust. J. Anim. Sci.: Asian-Australasian Journal of Animal Sciences; Aust. J. Agric. Res.: Australian Journal of Agricultural Research; EAAP: European Association for Animal Production; CP: crude protein; SID Trp:Lys: standardised ileal digestible tryptophan to lysine ratio.

⁽¹⁾ This reference was not published in a peer-reviewed journal at the time of this study.

Supplementary Table 3 *Characteristics of animals and basal diets for the 37 selected experiments*

	Mean	s.e.
Animal characteristics		
Initial average weight (kg)	8.8	2.2
Final average weight (kg)	20.2	6.3
Weaning age (d)	22.9	7.7
Initial age (d)	32.3	8.0
Duration (d)	28.3	8.4
Number of Trp levels (treatment)	4.0	0.9
Replicates/treatment	8.3	4.4
Animal/replicate	5.6	5.7
Number of animal/treatment	41.6	41.1
Basal diet characteristics		
NE (MJ/kg)	10.4	0.5
CP (%)	18.4	1.9
SID Lys (% in the diet)	1.01	0.16
SID Lys:NE (g/MJ)	0.97	0.16
SID Lys:CP (%)	6.1	0.7

s.e.: standard error of mean; NE: Net energy; CP: Crude protein; SID: Standardized ileal digestible.

Supplementary Table 4 Average standardized ileal digestible (SID) amino acid profile of the basal diets for the 37 selected experiments

	Mean	s.e.
SID amino acid profile (% of SID Lys)		
SID Thr:Lys	65.3	4.2
SID Met:Lys	40.9	8.0
SID Cys:Lys	25.1	2.6
SID (Met+Cys):Lys	66.0	7.9
SID Trp:Lys	13.0	3.0
SID Ile:Lys	63.3	5.3
SID Val:Lys	72.8	4.4
SID Leu:Lys	140.2	27.4
SID Phe:Lys	71.9	8.0
SID Tyr:Lys	52.0	7.8
SID (Phe+Tyr):Lys	123.9	15.5
SID LNAA:Lys	400.3	44.3
SID Trp:LNAA	3.3	0.9
SID His:Lys	37.4	3.1
SID Arg:Lys	95.8	19.1
SID Ala:Lys	92.3	28.0
SID Asx ⁽¹⁾ :Lys	126.2	14.2
SID Glx ⁽²⁾ :Lys	284.7	35.4
SID Gly:Lys	101.5	92.1
SID Ser:Lys	73.0	7.7
SID Pro:Lys	109.2	25.6

s.e.: standard error of mean; SID: Standardized ileal digestible; LNAA: Large neutral amino acids other than Trp (i.e. Val, Ile, Leu, Phe, and Tyr).

⁽¹⁾ Asx: aspartic acid + asparagine.

⁽²⁾ Glx: glutamic acid + glutamine.