

Collaborative published studies proving the efficacy and safety of products manufactured by SCCL and the applications for feeding colostrum in calves.

1. Pyo J, Hare K, Pletts S, Inabu Y, Haines D, Sugino T, Guan LL, Steele M. Feeding colostrum or a 1:1 colostrum:milk mixture for 3 days postnatal increases small intestinal development and minimally influences plasma glucagon-like peptide-2 and serum insulin-like growth factor-1 concentrations in Holstein bull calves. *J Dairy Sci.* 2020 May;103(5):4236-4251. doi: 10.3168/jds.2019-17219. Epub 2020 Mar 12. PMID: 32171512.
[Feeding colostrum or a 1:1 colostrum:milk mixture for 3 days postnatal increases small intestinal development and minimally influences plasma glucagon-like peptide-2 and serum insulin-like growth factor-1 concentrations in Holstein bull calves - Journal of Dairy Science](#)
Describes how gut development is influenced by PD1; Persistency of IgG in serum also described;
2. Ma T, O'Hara E, Song Y, Fischer AJ, He Z, Steele MA, Guan LL. Altered mucosa-associated microbiota in the ileum and colon of neonatal calves in response to delayed first colostrum feeding. *J Dairy Sci.* 2019 Aug;102(8):7073-7086. doi: 10.3168/jds.2018-16130. Epub 2019 Jun 13. PMID: 31202657.
[Altered mucosa-associated microbiota in the ileum and colon of neonatal calves in response to delayed first colostrum feeding - Journal of Dairy Science](#)
Timing of colostrum and impacts on gut microflora.
3. Inabu Y, Pyo J, Pletts S, Guan LL, Steele MA, Sugino T. Effect of extended colostrum feeding on plasma glucagon-like peptide-1 concentration in newborn calves. *J Dairy Sci.* 2019 May;102(5):4619-4627. doi: 10.3168/jds.2018-15616. Epub 2019 Mar 1. PMID: 30827561.
[Effect of extended colostrum feeding on plasma glucagon-like peptide-1 concentration in newborn calves - Journal of Dairy Science](#)
4. Inabu Y, Fischer A, Song Y, Guan LL, Oba M, Steele MA, Sugino T. Short communication: The effect of delayed colostrum feeding on plasma concentrations of glucagon-like peptide 1 and 2 in newborn calves. *J Dairy Sci.* 2018 Jul;101(7):6627-6631. doi: 10.3168/jds.2018-14412. Epub 2018 Apr 19. PMID: 29680641.
[Short communication: The effect of delayed colostrum feeding on plasma concentrations of glucagon-like peptide 1 and 2 in newborn calves - Journal of Dairy Science](#)
5. He Z, Fischer A, Song Y, Steele M, Guan LL. Genome wide transcriptome analysis provides bases on colonic mucosal immune system development affected by colostrum feeding strategies in neonatal calves. *BMC Genomics.* 2018 Aug 28;19(1):635. doi: 10.1186/s12864-018-5017-y. PMID: 30153793; PMCID: PMC6114731.
[Genome wide transcriptome analysis provides bases on colonic mucosal immune system development affected by colostrum feeding strategies in neonatal calves - PMC \(nih.gov\)](#)
Focus on effect of day one feeding on Microflora.
6. Fischer-Tlustos AJ, Hertogs K, van Niekerk JK, Nagorske M, Haines DM, Steele MA. Oligosaccharide concentrations in colostrum, transition milk, and mature milk of primi- and multiparous Holstein cows during the first week of lactation. *J Dairy Sci.* 2020 Apr;103(4):3683-3695. doi: 10.3168/jds.2019-17357. Epub 2020 Feb 7. PMID: 32037163.
[Oligosaccharide concentrations in colostrum, transition milk, and mature milk of primi- and multiparous Holstein cows during the first week of lactation - Journal of Dairy Science](#)
7. A.J. Fischer, C. Villot, J.K. van Niekerk, T.T. Yohe, D.L. Renaud, M.A. Steele, Corrigendum to "Invited Review: Nutritional regulation of gut function in dairy calves: From colostrum to weaning" (*Appl. Anim. Sci.* 35:498–510), *Applied Animal Science*, Volume 36, Issue 1, February 2020, Pages 133
[Invited Review: Nutritional regulation of gut function in dairy calves: From colostrum to weaning - ScienceDirect](#)

8. Xin H, Xu Y, Chen Y, Chen G, Steele MA, Guan LL. Short communication: Odd-chain and branched-chain fatty acid concentrations in bovine colostrum and transition milk and their stability under heating and freezing treatments. *J Dairy Sci.* 2020 Dec;103(12):11483-11489. doi: 10.3168/jds.2020-18994. Epub 2020 Oct 9. PMID: 33041035.
[Short communication: Odd-chain and branched-chain fatty acid concentrations in bovine colostrum and transition milk and their stability under heating and freezing treatments - Journal of Dairy Science](#)
9. Fischer AJ, Song Y, He Z, Haines DM, Guan LL, Steele MA. Effect of delaying colostrum feeding on passive transfer and intestinal bacterial colonization in neonatal male Holstein calves. *J Dairy Sci.* 2018 Apr;101(4):3099-3109. doi: 10.3168/jds.2017-13397. Epub 2018 Feb 4. PMID: 29397179.
[Effect of delaying colostrum feeding on passive transfer and intestinal bacterial colonization in neonatal male Holstein calves - Journal of Dairy Science](#)
10. Fischer AJ, Malmuthuge N, Guan LL, Steele MA. Short communication: The effect of heat treatment of bovine colostrum on the concentration of oligosaccharides in colostrum and in the intestine of neonatal male Holstein calves. *J Dairy Sci.* 2018 Jan;101(1):401-407. doi: 10.3168/jds.2017-13533. Epub 2017 Nov 6. PMID: 29102133.
[Short communication: The effect of heat treatment of bovine colostrum on the concentration of oligosaccharides in colostrum and in the intestine of neonatal male Holstein calves - Journal of Dairy Science](#)
11. Xin H, Xu Y, Chen Y, Chen G, Steele MA, Guan LL. Short communication: Odd-chain and branched-chain fatty acid concentrations in bovine colostrum and transition milk and their stability under heating and freezing treatments. *J Dairy Sci.* 2020 Dec;103(12):11483-11489. doi: 10.3168/jds.2020-18994. Epub 2020 Oct 9. PMID: 33041035.
[Short communication: Odd-chain and branched-chain fatty acid concentrations in bovine colostrum and transition milk and their stability under heating and freezing treatments - Journal of Dairy Science](#)
12. Fahey MJ, Fischer AJ, Steele MA, Greenwood SL. Characterization of the colostrum and transition milk proteomes from primiparous and multiparous Holstein dairy cows. *J Dairy Sci.* 2020 Feb;103(2):1993-2005. doi: 10.3168/jds.2019-17094. Epub 2019 Dec 16. PMID: 31837789.
[Characterization of the colostrum and transition milk proteomes from primiparous and multiparous Holstein dairy cows - Journal of Dairy Science](#)
13. Hromádková J, Suzuki Y, Pletts S, Pyo J, Ma T, Chen Y, Steele MA, Guan LL. Effect of colostrum feeding strategies on the expression of neuroendocrine genes and active gut mucosa-attached bacterial populations in neonatal calves. *J Dairy Sci.* 2020 Sep;103(9):8629-8642. doi: 10.3168/jds.2019-17710. Epub 2020 Jul 1. PMID: 32622610.
[Effect of colostrum feeding strategies on the expression of neuroendocrine genes and active gut mucosa-attached bacterial populations in neonatal calves - Journal of Dairy Science](#)
14. Desjardins-Morrisette M, van Niekerk JK, Haines D, Sugino T, Oba M, Steele MA. The effect of tube versus bottle feeding colostrum on immunoglobulin G absorption, abomasal emptying, and plasma hormone concentrations in newborn calves. *J Dairy Sci.* 2018 May;101(5):4168-4179. doi: 10.3168/jds.2017-13904. Epub 2018 Feb 14. PMID: 29454696.
[The effect of tube versus bottle feeding colostrum on immunoglobulin G absorption, abomasal emptying, and plasma hormone concentrations in newborn calves - Journal of Dairy Science](#)
Describes passive transfer of feeding 200 g IgG.
15. Hare KS, Pletts S, Pyo J, Haines D, Guan LL, Steele M. Feeding colostrum or a 1:1 colostrum:whole milk mixture for 3 days after birth increases serum immunoglobulin G and apparent immunoglobulin G persistency in Holstein bulls. *J Dairy Sci.* 2020 Dec;103(12):11833-11843. doi: 10.3168/jds.2020-18558. Epub 2020 Oct 15. PMID: 33069413.

- [Feeding colostrum or a 1:1 colostrum:whole milk mixture for 3 days after birth increases serum immunoglobulin G and apparent immunoglobulin G persistency in Holstein bulls - Journal of Dairy Science](#)
Shows how Post day one has impacts on IgG half life and gut villi.
16. Carter HSM, Renaud DL, Steele MA, Fischer-Tlustos AJ, Costa JHC. A Narrative Review on the Unexplored Potential of Colostrum as a Preventative Treatment and Therapy for Diarrhea in Neonatal Dairy Calves. *Animals (Basel)*. 2021 Jul 28;11(8):2221. doi: 10.3390/ani11082221. PMID: 34438679; PMCID: PMC8388388. [Animals | Free Full-Text | A Narrative Review on the Unexplored Potential of Colostrum as a Preventative Treatment and Therapy for Diarrhea in Neonatal Dairy Calves \(mdpi.com\)](#)
 17. Lopez AJ, Yohe TT, Echeverry-Munera J, Nagorske M, Renaud DL, Steele MA. Effects of a low- or high-frequency colostrum feeding protocol on immunoglobulin G absorption in newborn calves. *J Dairy Sci*. 2022 Jul;105(7):6318-6326. doi: 10.3168/jds.2021-21284. Epub 2022 May 20. PMID: 35599023. [Effects of a low- or high-frequency colostrum feeding protocol on immunoglobulin G absorption in newborn calves - Journal of Dairy Science](#)
Shows that 2 feedings within 12 hours works as good as three feedings within 12 hours.
 18. Lopez AJ, Steele MA, Nagorske M, Sargent R, Renaud DL. Hot topic: Accuracy of refractometry as an indirect method to measure failed transfer of passive immunity in dairy calves fed colostrum replacer and maternal colostrum. *J Dairy Sci*. 2021 Feb;104(2):2032-2039. doi: 10.3168/jds.2020-18947. Epub 2020 Dec 25. PMID: 33358782. [Hot topic: Accuracy of refractometry as an indirect method to measure failed transfer of passive immunity in dairy calves fed colostrum replacer and maternal colostrum - Journal of Dairy Science](#)
Shows limitations of refractometers.
 19. Song Y, Sun H, He Z, Fischer-Tlustos A, Ma T, Steele M, Guan LL. Transcriptome analysis revealed that delaying first colostrum feeding postponed ileum immune system development of neonatal calves. *Genomics*. 2021 Nov;113(6):4116-4125. doi: 10.1016/j.ygeno.2021.10.011. Epub 2021 Oct 29. PMID: 34743958. [Transcriptome analysis revealed that delaying first colostrum feeding postponed ileum immune system development of neonatal calves - ScienceDirect](#)
 20. Chamorro MF, Cernicchiaro N, Haines DM. Evaluation of the effects of colostrum replacer supplementation of the milk replacer ration on the occurrence of disease, antibiotic therapy, and performance of pre-weaned dairy calves. *J Dairy Sci*. 2017 Feb;100(2):1378-1387. doi: 10.3168/jds.2016-11652. Epub 2016 Dec 9. PMID: 27939546. [Evaluation of the effects of colostrum replacer supplementation of the milk replacer ration on the occurrence of disease, antibiotic therapy, and performance of pre-weaned dairy calves - Journal of Dairy Science](#)
 21. Ellis J. Passive transfer of colostral leukocytes: A benefit/risk analysis. *Can Vet J*. 2021 Mar;62(3):233-239. PMID: 33692577; PMCID: PMC7877691. [Passive transfer of colostral leukocytes: A benefit/risk analysis - PMC \(nih.gov\)](#)
Discusses weakness of notion calves must receive white blood cells from Dam for survival;
 22. Nissen A, Andersen PH, Bendixen E, Ingvarsten KL, Røntved CM. Colostrum and milk protein rankings and ratios of importance to neonatal calf health using a proteomics approach. *J Dairy Sci*. 2017 Apr;100(4):2711-2728. doi: 10.3168/jds.2016-11722. Epub 2017 Feb 8. PMID: 28189329. [Colostrum and milk protein rankings and ratios of importance to neonatal calf health using a proteomics approach - Journal of Dairy Science](#)
 23. Gamsjäger L, Haines DM, Pajor EA, Lévy M, Windeyer MC. Impact of volume, immunoglobulin G concentration, and feeding method of colostrum product on neonatal nursing behavior and transfer of passive immunity in beef calves. *Animal*. 2021 Sep;15(9):100345. doi: 10.1016/j.animal.2021.100345. Epub 2021 Aug 25. PMID: 34454347.

- [Impact of volume, immunoglobulin G concentration, and feeding method of colostrum product on neonatal nursing behavior and transfer of passive immunity in beef calves - ScienceDirect](#)
Shows efficacy of SCCL colostrum replacer in beef; shows hyperconcentrating colostrum replacer with IgG is not efficacious.
24. Wittum TE, Perino LJ. Passive immune status at postpartum hour 24 and long-term health and performance of calves. *Am J Vet Res.* 1995 Sep;56(9):1149-54. PMID: 7486391.
[Passive immune status at postpartum hour 24 and long-term health and performance of calves - PubMed \(nih.gov\)](#)
The effects of 24-hour passive immune status on calf growth were indirect through effects on morbidity outcomes.
25. Berge AC, Besser TE, Moore DA, Sischo WM. Evaluation of the effects of oral colostrum supplementation during the first fourteen days on the health and performance of preweaned calves. *J Dairy Sci.* 2009 Jan;92(1):286-95. doi: 10.3168/jds.2008-1433. PMID: 19109287; PMCID: PMC7125711.
[Evaluation of the effects of oral colostrum supplementation during the first fourteen days on the health and performance of preweaned calves - Journal of Dairy Science](#)
Passive immune status at postpartum hour 24 and long-term health and performance of calves; lower dose than Chamorro study;
26. Morin DE, Nelson SV, Reid ED, Nagy DW, Dahl GE, Constable PD. Effect of colostrum volume, interval between calving and first milking, and photoperiod on colostrum IgG concentrations in dairy cows. *J Am Vet Med Assoc.* 2010 Aug 15;237(4):420-8. doi: 10.2460/javma.237.4.420. PMID: 20707753.
[Effect of colostrum volume, interval between calving and first milking, and photoperiod on colostrum IgG concentrations in dairy cows in: Journal of the American Veterinary Medical Association Volume 237 Issue 4 \(\) \(avma.org\)](#)
27. Cummins C, Berry DP, Murphy JP, Lorenz I, Kennedy E. The effect of colostrum storage conditions on dairy heifer calf serum immunoglobulin G concentration and preweaning health and growth rate. *J Dairy Sci.* 2017 Jan;100(1):525-535. doi: 10.3168/jds.2016-10892. Epub 2016 Nov 9. PMID: 27837982.
[The effect of colostrum storage conditions on dairy heifer calf serum immunoglobulin G concentration and preweaning health and growth rate - Journal of Dairy Science](#)
28. Lombard J, Urie N, Garry F, Godden S, Quigley J, Earleywine T, McQuirk S, Moore D, Branan M, Chamorro M, Smith G, Shivley C, Catherman D, Haines D, Heinrichs AJ, James R, Maas J, Sterner K. Consensus recommendations on calf- and herd-level passive immunity in dairy calves in the United States. *J Dairy Sci.* 2020 Aug;103(8):7611-7624. doi: 10.3168/jds.2019-17955. Epub 2020 May 21. PMID: 32448583.
[Consensus recommendations on calf- and herd-level passive immunity in dairy calves in the United States - Journal of Dairy Science](#)
This is the National Animal Health Monitoring Study 2014.
29. Van Soest B, Cullens F, VandeHaar MJ, Nielsen MW. Short communication: Effects of transition milk and milk replacer supplemented with colostrum replacer on growth and health of dairy calves. *J Dairy Sci.* 2020 Dec;103(12):12104-12108. doi: 10.3168/jds.2020-18361. Epub 2020 Sep 25. PMID: 32981727.
[Short communication: Effects of transition milk and milk replacer supplemented with colostrum replacer on growth and health of dairy calves - Journal of Dairy Science](#)