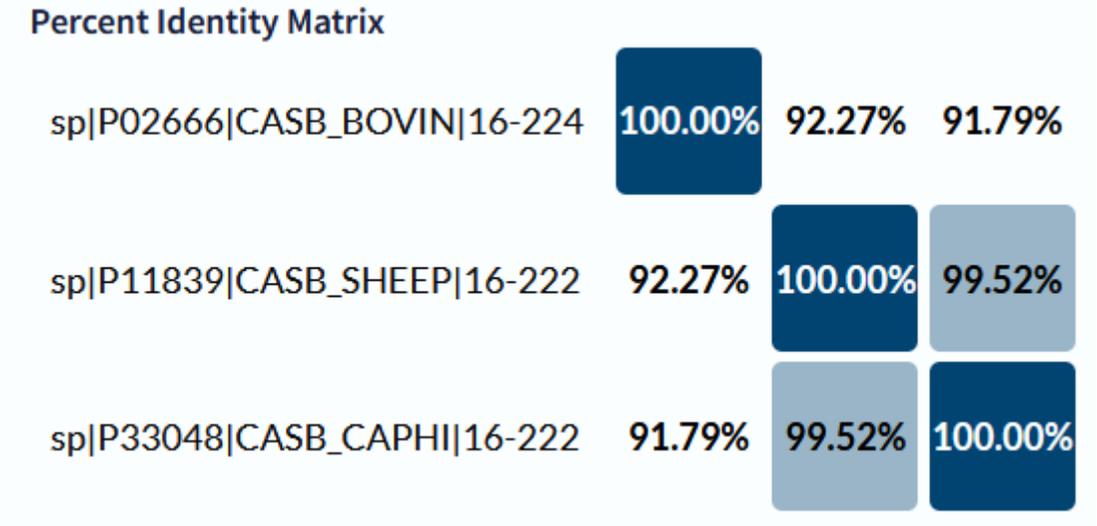


sp P02666 CASB_BOVIN 16-224	R E L E E L N V P G E I V E S L S S S E E S I T R I N K K I E K F Q S E E Q Q Q T E D E L Q D K I H P F A Q T Q S L V Y P	61
sp P11839 CASB_SHEEP 16-222	R E Q E E L N V V G E T V E S L S S S E E S I T H I N K K I E K F Q S E E Q Q Q T E D E L Q D K I H P F A Q A Q S L V Y P	61
sp P33048 CASB_CAPHI 16-222	R E Q E E L N V V G E T V E S L S S S E E S I T H I N K K I E K F Q S E E Q Q Q T E D E L Q D K I H P F A Q A Q S L V Y P	61
sp P02666 CASB_BOVIN 16-224	F P G P I P N S L P Q N I P P L T Q T P V V V P P F L Q P E V M G V S K V K E A M A P K H K E M P F P K Y P V E P F T E S	122
sp P11839 CASB_SHEEP 16-222	F T G P I P N S L P Q N I L P L T Q T P V V V P P F L Q P E I M G V P K V K E T M V P K H K E M P F P K Y P V E P F T E S	122
sp P33048 CASB_CAPHI 16-222	F T G P I P N S L P Q N I L P L T Q T P V V V P P F L Q P E I M G V P K V K E T M V P K H K E M P F P K Y P V E P F T E S	122
sp P02666 CASB_BOVIN 16-224	Q S L T L T D V E N L H L P L P L L Q S W M H Q P H Q P L P P T V M F P P Q S V L S L S Q S K V L P V P Q K A V P Y P Q R	183
sp P11839 CASB_SHEEP 16-222	Q S L T L T D V E K L H L P L P L V Q S W M H Q P P Q P L P P T V M F P P Q S V L S L S Q P K V L P V P Q K A V - - P Q R	181
sp P33048 CASB_CAPHI 16-222	Q S L T L T D V E K L H L P L P L V Q S W M H Q P P Q P L S P T V M F P P Q S V L S L S Q P K V L P V P Q K A V - - P Q R	181
sp P02666 CASB_BOVIN 16-224	D M P I Q A F L L Y Q E P V L G P V R G P F P I I V	209
sp P11839 CASB_SHEEP 16-222	D M P I Q A F L L Y Q E P V L G P V R G P F P I L V	207
sp P33048 CASB_CAPHI 16-222	D M P I Q A F L L Y Q E P V L G P V R G P F P I L V	207



**Figure S1.**  $\beta$ -casein sequence alignment and comparison of percent identity in cow, sheep, and goat. Sequence alignment of  $\beta$ -casein chains from cow, sheep, and goat, highlighting similarities and differences in their amino acid sequences. Percentage identity matrix illustrating sequence similarity between  $\beta$ -caseins from the three species. The figures were prepared and taken from the UniProt Consortium ([www.uniprot.org](http://www.uniprot.org)).

sp P02662 CASA1_BOVIN 16-214	RPKHP	IKHQGL	PQEV	LNENL	LRFF	VAPF	PEVF	FGKE	KVNEL	SKDIG	SEST	EDQAM	EDIK	QME	61	
sp P04653 CASA1_SHEEP 16-214	RPKHP	IKHQGL	SSEV	LNENL	LRFF	VVAP	PFPE	VFRK	ENINEL	SKDIG	SESI	EDQAM	EDAK	QMK	61	
sp P18626 CASA1_CAPHI 16-214	RPKHP	INHRGL	SPEV	PNENL	LRFF	VVAP	PFPE	VFRK	ENINEL	SKDIG	SEST	EDQAM	EDAK	QMK	61	
sp P02662 CASA1_BOVIN 16-214	AES	ISS	SEE	IVPNS	VEQKH	IQKED	VPSERY	LGYLE	QLLRL	KKYK	VPQLE	IVPNS	SAEER	LHS	122	
sp P04653 CASA1_SHEEP 16-214	AGS	SSS	SEE	IVPNS	AEQKY	IQKED	VPSERY	LGYLE	QLLRL	KKYN	VPQLE	IVPKS	SAEEQ	LHS	122	
sp P18626 CASA1_CAPHI 16-214	AGS	SSS	SEE	IVPNS	AEQKY	IQKED	VPSERY	LGYLE	QLLRL	KKYN	VPQLE	IVPKS	SAEEQ	LHS	122	
sp P02662 CASA1_BOVIN 16-214	MKEG	IHA	QQKE	PMIG	VNQEL	AYFY	PEL	FRQFY	QLDAY	PSGAW	YYV	PLGT	QYTD	APSF	SDIP	183
sp P04653 CASA1_SHEEP 16-214	MKEGN	PAH	QKQ	PMIA	VNQEL	AYFY	PQL	FRQFY	QLDAY	PSGAW	YYL	PLGT	QYTD	APSF	SDIP	183
sp P18626 CASA1_CAPHI 16-214	MKEGN	PAH	QKQ	PMIA	VNQEL	AYFY	PQL	FRQFY	QLDAY	PSGAW	YYL	PLGT	QYTD	APSF	SDIP	183
sp P02662 CASA1_BOVIN 16-214	NPI	IGSEN	SEK	TTMPLW												199
sp P04653 CASA1_SHEEP 16-214	NPI	IGSEN	SGK	ITMPLW												199
sp P18626 CASA1_CAPHI 16-214	NPI	IGSEN	SGK	TTMPLW												199

### Percent Identity Matrix

sp P02662 CASA1_BOVIN 16-214	100.00%	87.44%	86.93%
sp P04653 CASA1_SHEEP 16-214	87.44%	100.00%	96.98%
sp P18626 CASA1_CAPHI 16-214	86.93%	96.98%	100.00%

**Figure S2.**  $\alpha_{s1}$ -casein sequence alignment and comparison of percent identity in cow, sheep, and goat. Sequence alignment of  $\alpha_{s1}$ -casein chains from cow, sheep, and goat, highlighting similarities and differences in their amino acid sequences. Percentage identity matrix illustrating sequence similarity between  $\alpha_{s1}$ -caseins from the three species. The figures were prepared and taken from the UniProt Consortium ([www.uniprot.org](http://www.uniprot.org)).

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sp|P02663|CASA2_BOVIN|16-222 K N T M E H V S S S E E S - I I S Q E T Y K Q E K N M A I N P S K E N L C S T F C K E V V R N A N E E E E Y S I G S S S E E 60
sp|P04654|CASA2_SHEEP|16-223 K H K M E H V S S S E E P I N I S Q E I Y K Q E K N M A I H P R K E K L C T T S C E E V V R N A D E E E E Y S I R S S S E E 61
sp|P33049|CASA2_CAPHI|16-223 K H K M E H V S S S E E P I N I F Q E I Y K Q E K N M A I H P R K E K L C T T S C E E V V R N A N E E E E Y S I R S S S E E 61

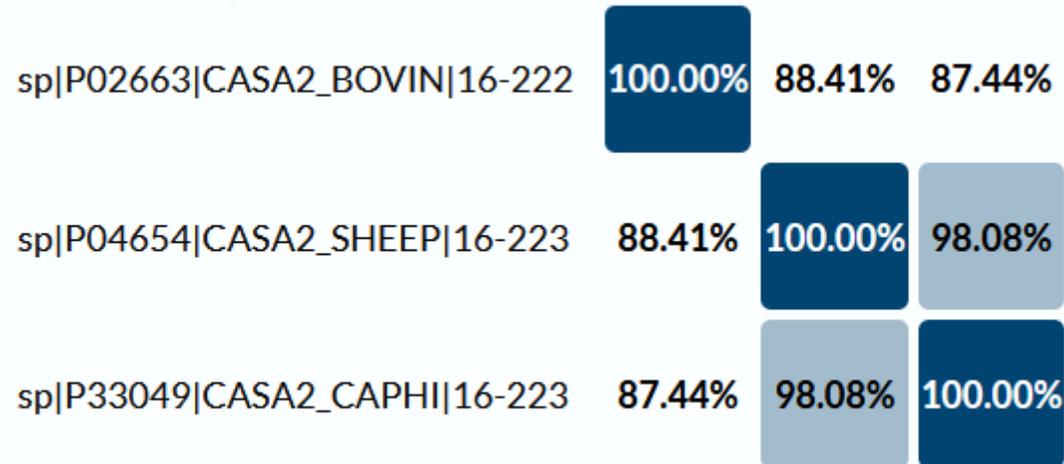
sp|P02663|CASA2_BOVIN|16-222 S A E V A T E E V K I T V D D K H Y Q K A L N E I N Q F Y Q K F P Q Y L Q Y L Y Q G P I V L N P W D Q V K R N A V P I T P 121
sp|P04654|CASA2_SHEEP|16-223 S A E V A P E E V K I T V D D K H Y Q K A L N E I N Q F Y Q K F P Q Y L Q Y L Y Q G P I V L N P W D Q V K R N A G P F T P 122
sp|P33049|CASA2_CAPHI|16-223 S A E V A P E E I K I T V D D K H Y Q K A L N E I N Q F Y Q K F P Q Y L Q Y P Y Q G P I V L N P W D Q V K R N A G P F T P 122

sp|P02663|CASA2_BOVIN|16-222 T L N R E Q L S T S E E N S K K T V D M E S T E V F T K K T K L T E E E K N R L N F L K K I S Q R Y Q K F A L P Q Y L K T 182
sp|P04654|CASA2_SHEEP|16-223 T V N R E Q L S T S E E N S K K T I D M E S T E V F T K K T K L T E E E K N R L N F L K K I S Q Y Y Q K F A W P Q Y L K T 183
sp|P33049|CASA2_CAPHI|16-223 T V N R E Q L S T S E E N S K K T I D M E S T E V F T K K T K L T E E E K N R L N F L K K I S Q Y Y Q K F A W P Q Y L K T 183

sp|P02663|CASA2_BOVIN|16-222 V Y Q H Q K A M K P W I Q P K T K V I P Y V R Y L 207
sp|P04654|CASA2_SHEEP|16-223 V D Q H Q K A M K P W T Q P K T N A I P Y V R Y L 208
sp|P33049|CASA2_CAPHI|16-223 V D Q H Q K A M K P W T Q P K T N A I P Y V R Y L 208

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### Percent Identity Matrix



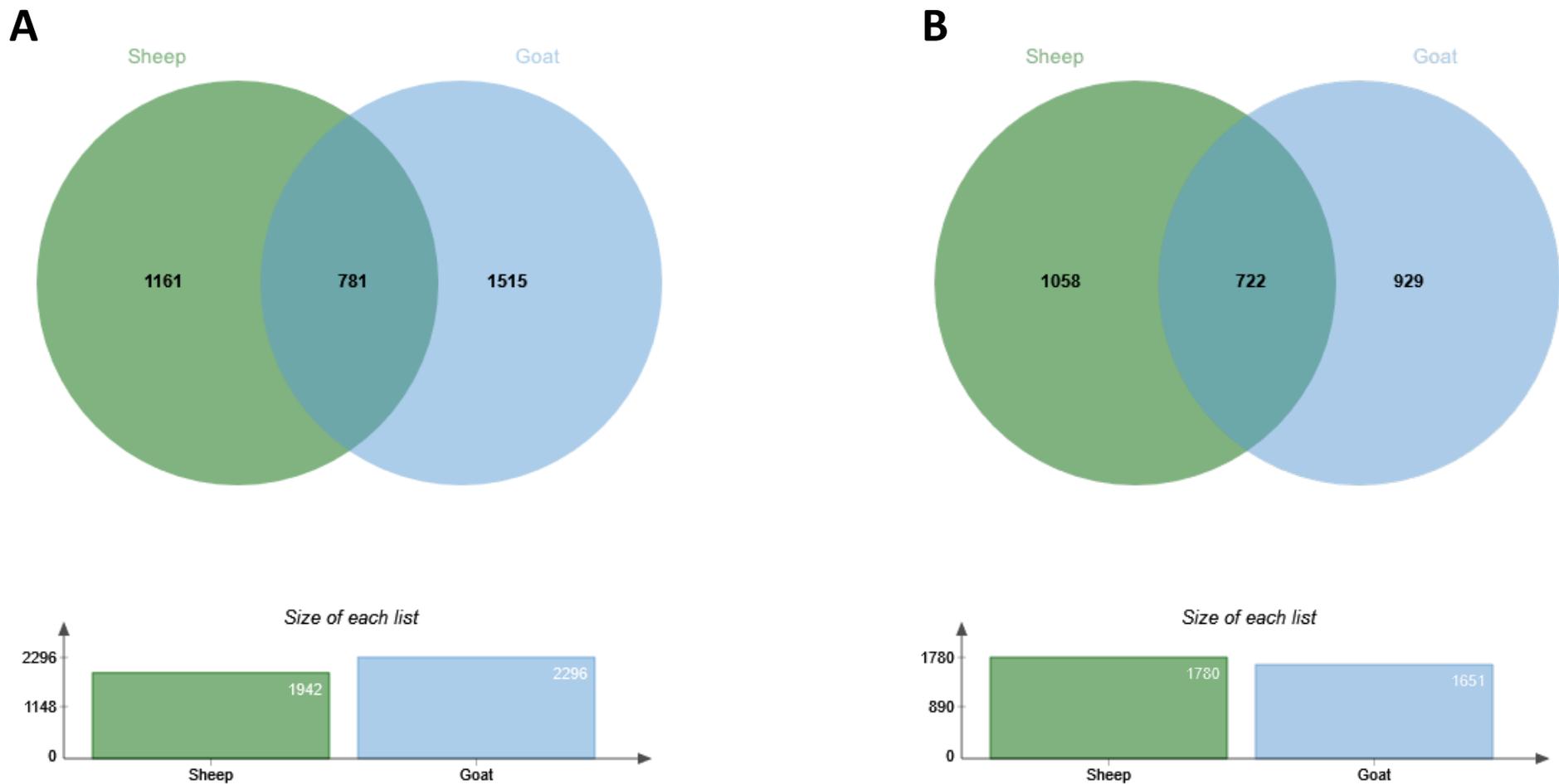
**Figure S3.**  $\alpha_{s2}$ -casein sequence alignment and comparison of percent identity in cow, sheep, and goat. Sequence alignment of  $\alpha_{s2}$ -casein chains from cow, sheep, and goat, highlighting similarities and differences in their amino acid sequences. Percentage identity matrix illustrating sequence similarity between  $\alpha_{s2}$ -caseins from the three species. The figures were prepared and taken from the UniProt Consortium ([www.uniprot.org](http://www.uniprot.org)).

sp P02669 CASK_SHEEP 22-192	QEQNQEQRI	CEKDERFFD	DKIAKYIPI	IQYVLSRYP	SYGLNYYQQ	RPVALINN	QFLPYPYY	61
sp P02670 CASK_CAPHI 22-192	QEQNQEQPI	CEKDERFFD	DKIAKYIPI	IQYVLSRYP	SYGLNYYQQ	RPVALINN	QFLPYPYY	61
sp P02668 CASK_BOVIN 22-190	QEQNQEQPI	RCEKDERFF	SDKIAKYIPI	IQYVLSRYP	SYGLNYYQQ	KPVALINN	QFLPYPYY	61
sp P02669 CASK_SHEEP 22-192	AKPVAVRSPA	QTLQWQVLP	NVPAKSCQD	QPTAMARHP	PHLSFMAIPP	KKDQDKTEI	PAI	122
sp P02670 CASK_CAPHI 22-192	AKPVAVRSPA	QTLQWQVLP	NTVPAKSCQD	QPTTLARHP	PHLSFMAIPP	KKDQDKTEV	PAI	122
sp P02668 CASK_BOVIN 22-190	AKPAAVRSPA	QILQWQVLS	NTVPAKSCQA	QPTTMARHP	PHLSFMAIPP	KKNQDKTEI	PTI	122
sp P02669 CASK_SHEEP 22-192	NTIASAEPTV	HSTPTTEAV	VNAV	VDNPEASSE	SIASAPET	TNTAQVTST	EV	171
sp P02670 CASK_CAPHI 22-192	NTIASAEPTV	HSTPTTEAV	IVNTV	DNPEASSE	SIASASET	TNTAQVTST	EV	171
sp P02668 CASK_BOVIN 22-190	NTIASGEP	TS - -TPTTEA	VESTV	ATLED	SPEVIESP	PEINTV	QVTSTAV	169

### Percent Identity Matrix

sp P02669 CASK_SHEEP 22-192	100.00%	95.32%	83.43%
sp P02670 CASK_CAPHI 22-192	95.32%	100.00%	83.43%
sp P02668 CASK_BOVIN 22-190	83.43%	83.43%	100.00%

**Figure S4.**  $\kappa$ -casein sequence alignment and comparison of percent identity in cow, sheep, and goat. Sequence alignment of  $\kappa$ -casein chains from cow, sheep, and goat, highlighting similarities and differences in their amino acid sequences. Percentage identity matrix illustrating sequence similarity between  $\kappa$ -caseins from the three species. The figures were prepared and taken from the UniProt Consortium ([www.uniprot.org](http://www.uniprot.org)).



**Figure S5.** Comparative Venn diagrams of peptide profiles in sheep milk and goat milk kefir. (A) Venn diagram comparing all native peptides from proteins identified in sheep milk and goat milk fermentation at different durations (including control). (B) Venn diagram comparing casein peptides in sheep milk and goat milk (including control). Jvenn tool (Bardou, P.; Mariette, J.; Escudié, F.; Djemiel, C.; Klopp, C. Jvenn: An Interactive Venn Diagram Viewer. *BMC Bioinformatics* **2014**, *15*, 293, doi:10.1186/1471-2105-15-293) was used to create the Venn diagrams. Peptide list of goat milk kefir were obtained from the

previous study by Izquierdo-González, J.J.; Amil-Ruiz, F.; Zazzu, S.; Sánchez-Lucas, R.; Fuentes-Almagro, C.A.; Rodríguez-Ortega, M.J. Proteomic Analysis of Goat Milk Kefir: Profiling the Fermentation-Time Dependent Protein Digestion and Identification of Potential Peptides with Biological Activity. *Food Chem.* **2019**, *295*, 456–465, doi:10.1016/j.foodchem.2019.05.178.