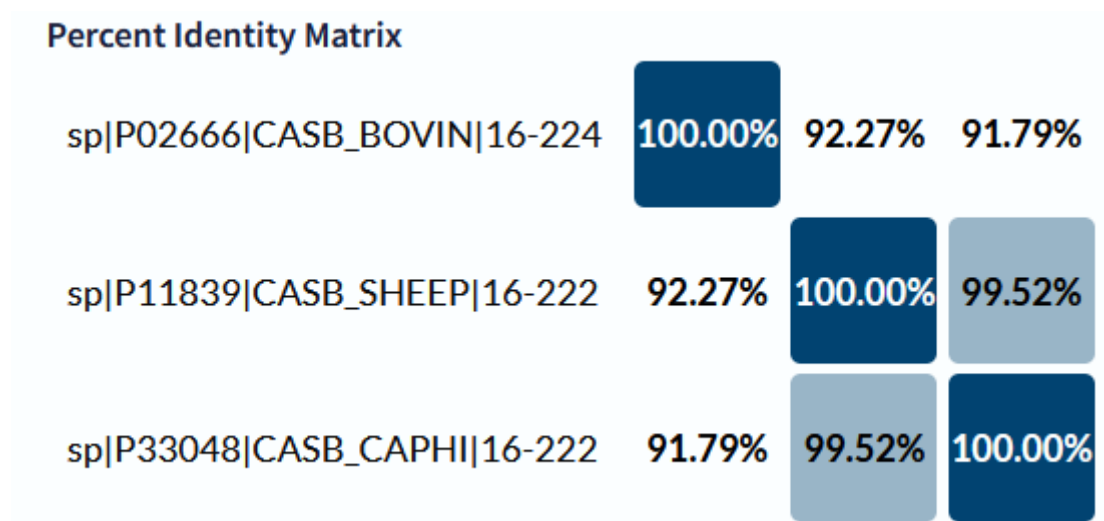


sp P02666 CASB_BOVIN 16-224	R	E	L	E	E	L	N	V	P	G	E	I	V	E	S	L	S	S	S	E	E	S	I	T	R	I	N	K	K	I	E	K	F	Q	S	E	E	Q	Q	T	E	D	E	L	Q	D	K	I	H	P	F	A	Q	T	Q	S	L	V	Y	P	61																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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**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	LNEN	LLRF	FVAP	FPEV	FGKE	KVNE	LSKD	IGSE	STED	QAMED	IKQME	61				
sp P04653 CASA1_SHEEP 16-214	RPKHP	IKHQGL	SSEVL	LNEN	LLRF	VVAP	FPEV	FRKE	NINEL	SKDI	GSSE	I	EDQAM	EDAKQMK	61				
sp P18626 CASA1_CAPHI 16-214	RPKHP	INHRGL	SPEVP	NENL	LLRF	VVAP	FPEV	FRKE	NINEL	SKDI	GSSE	STED	QAMED	EDAKQMK	61				
sp P02662 CASA1_BOVIN 16-214	AES	ISSS	EEIV	PN	SV	EQKH	IQKE	DVP	SERY	LGYLE	QQLRL	KKY	KVP	QLEIV	PN	SAEE	R	LHS	122
sp P04653 CASA1_SHEEP 16-214	AGS	SSSS	EEIV	PN	SA	EQKY	IQKE	DVP	SERY	LGYLE	QQLRL	KKY	NVP	QLEIV	PK	SAEE	Q	LHS	122
sp P18626 CASA1_CAPHI 16-214	AGS	SSSS	EEIV	PN	SA	EQKY	IQKE	DVP	SERY	LGYLE	QQLRL	KKY	NVP	QLEIV	PK	SAEE	Q	LHS	122
sp P02662 CASA1_BOVIN 16-214	MKEG	IHA	QQKE	PMI	G	VNQEL	AYFY	PE	LFR	QFYQ	LDAY	PSG	AWY	YV	PLGT	QYTD	APSF	SDIP	183
sp P04653 CASA1_SHEEP 16-214	MKEG	NPA	HQKQ	PMI	A	VNQEL	AYFY	PQL	FR	QFYQ	LDAY	PSG	AWY	YL	PLGT	QYTD	APSF	SDIP	183
sp P18626 CASA1_CAPHI 16-214	MKEG	NPA	HQKQ	PMI	A	VNQEL	AYFY	PQL	FR	QFYQ	LDAY	PSG	AWY	YL	PLGT	QYTD	APSF	SDIP	183
sp P02662 CASA1_BOVIN 16-214	NPI	IGSEN	SEK	TTM	PLW	199													
sp P04653 CASA1_SHEEP 16-214	NPI	IGSEN	SGK	ITM	PLW	199													
sp P18626 CASA1_CAPHI 16-214	NPI	IGSEN	SGK	TTM	PLW	199													

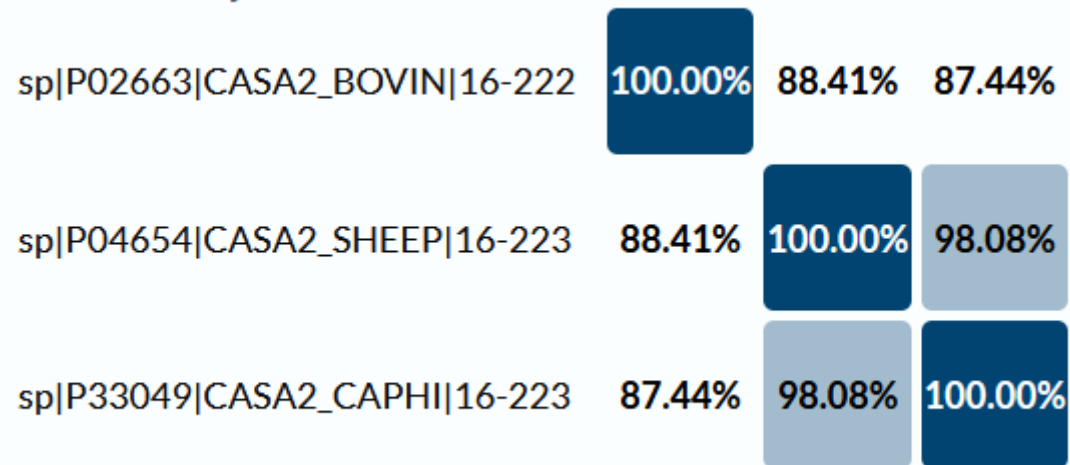
### Percent Identity Matrix

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)).

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

### Percent Identity Matrix



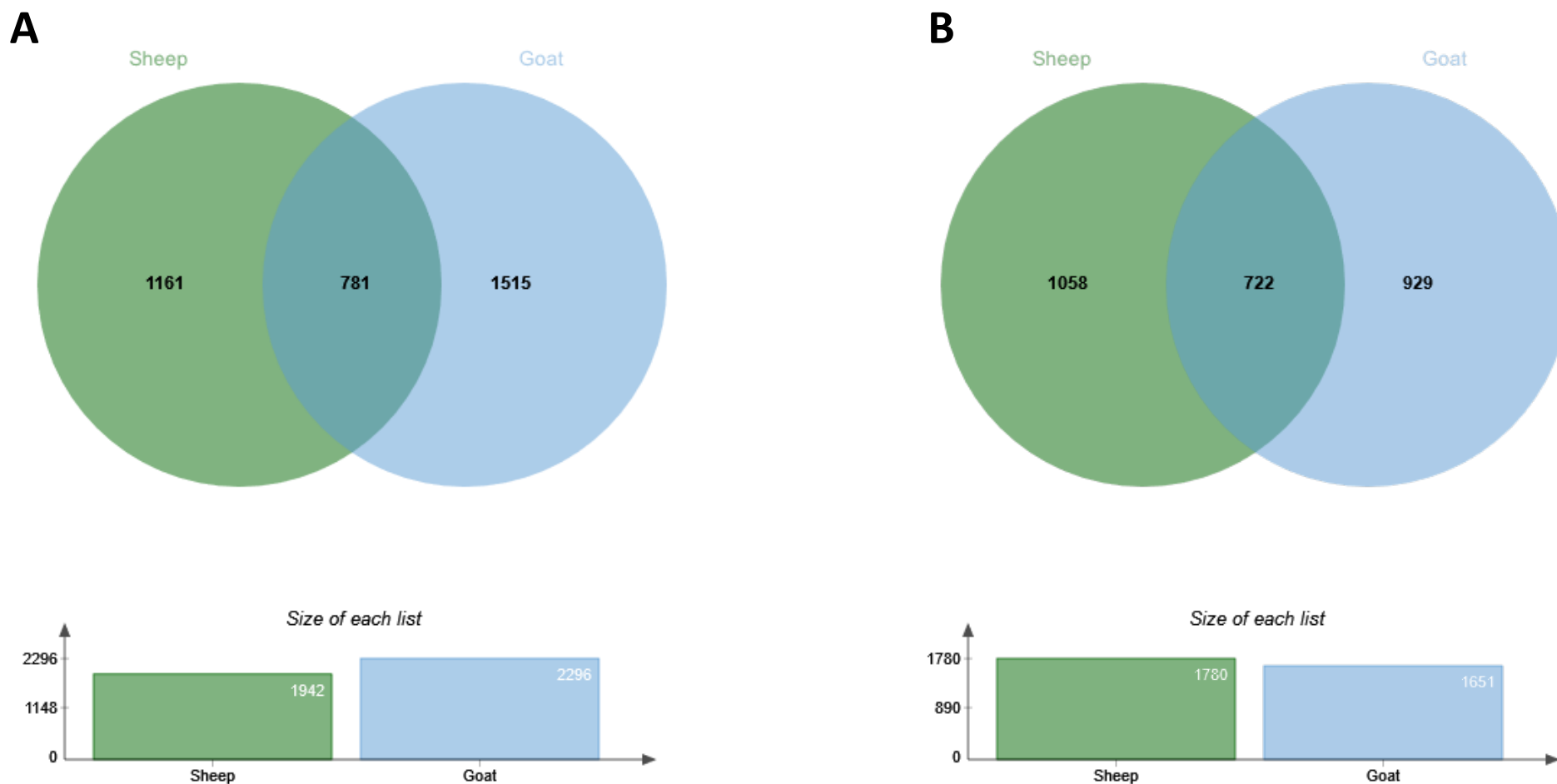
**Figure S3.**  $\alpha_2$ -casein sequence alignment and comparison of percent identity in cow, sheep, and goat. Sequence alignment of  $\alpha_2$ -casein chains from cow, sheep, and goat, highlighting similarities and differences in their amino acid sequences. Percentage identity matrix illustrating sequence similarity between  $\alpha_2$ -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	IQYVLSRYPSYGLNYYQQR	RPVALINNQFLPYPHY	61
sp P02670 CASK_CAPHI 22-192	QEQNQEQPI	CEKDERFFD	DKIAKYIPI	IQYVLSRYPSYGLNYYQQR	RPVALINNQFLPYPHY	61
sp P02668 CASK_BOVIN 22-190	QEQNQEQPI	RCEKDERFFS	DKIAKYIPI	IQYVLSRYPSYGLNYYQQR	KPVALINNQFLPYPHY	61
sp P02669 CASK_SHEEP 22-192	AKPVAVRSPAQT	LQWQVLPNAVPAKSCQDQPT	AMARHHPHLSFMAIPP	KKDQDKTEIPA	I	122
sp P02670 CASK_CAPHI 22-192	AKPVAVRSPAQT	LQWQVLPNTVPAKSCQDQPT	TLARHHPHLSFMAIPP	KKDQDKTEVPA	I	122
sp P02668 CASK_BOVIN 22-190	AKPAAVRSPAQI	LQWQVLSNTVPAKSCQAQPT	TMARHHPHLSFMAIPP	KKNQDKTEIPT	I	122
sp P02669 CASK_SHEEP 22-192	NTIASAEPTVHST	TPTTEAVVNAV	VDNPEASSESI	IASAPETNTAQVTSTEV		171
sp P02670 CASK_CAPHI 22-192	NTIASAEPTVHST	TPTTEAIVNTV	VDNPEASSESI	IASASETNTAQVTSTEV		171
sp P02668 CASK_BOVIN 22-190	NTIASGEPTS - -	TPTTEAVESTV	ATLEDSP	EVIESPPEINTVQVTSTAV		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.