Strain	GenBank ID	Group	Length	Identity	Activity against X5P	Activity against F6P	Reference		
			(a.a.)	(%) ^a					
Bifidobacterium breve	GU936109	XFPK	825	_	Specific activity	Specific activity	This work		
203					29.0 (U/mg)	14.5 (U/mg)			
Bifidobacterium lactis	CAC29121	XFPK	825	94	$V_{\rm max}/K_{\rm m}^{\rm b}$	$V_{\rm max}/K_{\rm m}^{\rm b}$	(1)		
					0.52 (U/mg/mM)	0.6 (U/mg/mM)			
Bifidobacterium	BAF37975	XFPK	825	95	_	_	(2)		
animalis ^c									
Bifidobacterium longum ^c	AAN24771	XFPK	825	84	_	_	(3)		
Bifidobacterium longum	ACJ52798	XFPK	825	83	_	_	(4)		
subsp. <i>infantis^c</i>									
Lactobacillus pentosus	CAC84393	XPK	788	46	Specific activity	_	(5)		
					4.5 (U/mg)				
Lactobacillus	AAQ64626	XPK	788	46	_	$V_{\rm max}/K_{\rm m}$	(6)		
paraplantarum						98.3 (U/mg/mM)			
Lactobachillus plantarum	CAD65631	XPK	803	47	$V_{\rm max}/K_{\rm m}$ $V_{\rm max}/K_{\rm m}$		(7)		
					1.14 (IU/mg/mM)	0.075 (IU/mg/mM)			
Leuconostoc	AAV66077	XPK	813	42	_	Specific activity	(8)		
mesenteroides						0.3 (U/mg)			

Supplementary Table 1. List of PK genes.

^{*a*}Amino acid sequence identities with *Bifidobacterium breve* XFPK (*Bb*XFPK). The amino acid sequence identities between the XPK and XFPK groups are about 45%, but the identities within each group are more than 80%.

^{*b*}Measured using native enzyme.

^cPutative genes annotated by genome projects

Name	Sequence of oligonucleotide primer
H64A	5'- ACCGTCTGGTCGGC <u>GCC</u> TGGGGGCACCA -3'
H64N	5'- ACCGTCTGGTCGGCAACTGGGGGCACCA -3'
H97A	5'- ATGGGCCCGGGC <u>GCC</u> GGCGGCCCGGCT -3'
H97N	5'- ATGGGCCCGGGC <u>AAC</u> GGCGGCCCGGCT -3'
H142A	5'- GCGGCATCCCGTCG <u>GCC</u> TTCGCCCCGGAGA -3'
H142N	5'- GCGGCATCCCGTCG <u>AAC</u> TTCGCCCCGGAGA -3'
H320A	5'- CTCCTGGCGTGCG <u>GCC</u> CAGGTCCCGCTGGCTT -3'
H320N	5'- CTCCTGGCGTGCG <u>AAC</u> CAGGTCCCGCTGGCTT -3'
Q321A	5'- CTCCTGGCGTGCGCAC <u>GCC</u> GTCCCGCTGGCTT -3'
S440A	5'- ACCGGACGAGACCGCTGCAACG-3'
E479A	5'- ACCGAGCAGCTCTCC <u>GCC</u> CACCAGTGCGAGG -3'
Y501F	5'- ATCTGGAGCTCC <u>TTC</u> GAGTCCTTCGTCCA -3'
H548A	5'- GTGGCGTCAGGAT <u>GCC</u> AACGGCTTCTCGCA -3'
N549A	5'- GGCGTCAGGATCAC <u>GCC</u> GGCTTCTCGCACCA -3'
H553A	5'- AACGGCTTCTCG <u>GCC</u> CAGGACCCGGG -3'
H553N	5'- AACGGCTTCTCG <u>AAC</u> CAGGACCCGGG -3'
K605A	5'- ATCTTCGCCGGC <u>GCC</u> CAGCCTGCTCCGA -3'

Supplementary Table 2. The forward oligonucleotide primers used for construction of *Bb*XFPK mutants.

The mutated sequences are underlined

Data set	H64A	H142A	H320A	H553A					
Data collection statistics									
Space group	<i>I422</i>								
Unit cell (Å)	<i>a</i> = 175.0	<i>a</i> = 174.6	<i>a</i> = 174.4	<i>a</i> = 175.1					
	<i>b</i> = 175.0	<i>b</i> = 174.6	<i>b</i> = 174.4	<i>b</i> = 175.1					
	<i>c</i> = 163.6	<i>c</i> = 163.6	<i>c</i> = 163.8	c = 164.0					
Beam line	PF-BL5A-	PF-BL5A	PF-BL5A	PF-BL17A					
Wavelength (Å)	1.00000	1.00000	1.00000	1.00000					
Resolution (Å) a	50-1.90	50-2.10	50-2.10	50-2.10					
	(1.93-1.90)	(2.14-2.10)	(2.14-2.10)	(2.14-2.10)					
Total reflections	1,370,980	1,079,028	1,074,515	1,078,552					
Unique reflections	99,057	73,408	73,346	74,103					
Completeness $(\%)^a$	99.3 (100)	100 (100)	100 (100)	99.8 (99.9)					
$R_{\rm merge} \left(\%\right)^a$	5.8 (31.1)	7.2 (28.4)	7.1 (30.5)	7.7 (33.2)					
$I/\sigma I^a$	57.6 (8.8)	44.7 (9.7)	47.5 (10.1)	42.1 (6.9)					
Redundancy ^a	13.9 (12.8)	14.7 (14.9)	14.7 (14.7)	14.6 (13.2)					
Refinement statistics									
Resolution range (Å)	33.50-1.90	34.15-2.10	34.21-2.10	38.61-2.10					
No. of reflections	92,268	69,663	69,576	70,211					
<i>R</i> -factor/ R_{free} (%)	16.3/20.6	15.8/19.6	15.0/19.4	15.8/19.1					
r.m.s.d. from ideal									
Bond lengths (Å)	0.031	0.029	0.028	0.029					
Bond angles (°)	2.221	2.139	2.031	1.962					
Average <i>B</i> -factor (Å ²)									
Protein	26.1	22.8	24.2	29.1					
Water	37.0	29.0	32.2	34.9					
ThDP	22.0	19.6	19.1	26.1					
Mg^{2+}	20.4	16.6	16.1	23.1					
Ramachandran plot (%)									
Favoured	96.4	95.8	95.9	96.4					
Allowed	3.6	4.1	4.1	3.6					
Disallowed	0.0	0.1	0.0	0.0					

Supplementary Table 3. Data collection and refinement statistics of *Bb*XFPK mutants.

^{*a*}Values for highest resolution shell are given in parentheses.

Supplementary Figure Legends

<u>Supplementary Fig. 1.</u> Amino acid sequence alimnment of PK. The sequence alignment was generated using ESPript (10). Residues important for catalysis and substrate binding characterized in this work are indicated by arrows.

<u>Supplementary Fig. 2.</u> Phylogenetic tree of PK. The tree was constructed from the alignment shown in Supplementary Fig. 1 by the neighbor-joining method.

<u>Supplementary Fig. 3.</u> Stereoview of ThDP-binding manner in the active site of *Bb*XFPK. (A) Hydrophobic and hydrophilic interactions involved in the maintenance of V-conformation of ThDP. (B) The hexacoordinate geometry of Mg^{2+} ion and the interactions between diphosphate portion of ThDP and *Bb*XFPK.

Supplementary Fig. 4. $|F_0|$ - $|F_c|$ omit electron density maps of the cofactors and their covalent adducts in the active site of *Bb*XFPK mutants. (A) Map of AcThDP (H142A) contoured at 3.5 σ . (B) Map of AcThDP (H320A) contoured at 3.5 σ . (C) Map of ThDP (H553A) contoured at 3.7 σ .

<u>Supplementary Fig. 5.</u> Stereoview of superimposition of the active site of wild-type (gray) and H64A mutant (colored) of *Bb*XFPK. Residues of H64A from PP domain of one subunit and Pyr domain of the other subunit are colored blue and yellow, respectively.

		H64
B_breve203 B_lactis B_animalis B_longum subsp_infantis La_pentosus La_pantarum La_plantarum La_mesteroides	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MTNPVIGTPWQKLDRPVGEEAIEGMDKYWEVTNYMGIGQIYDRSNP2MKEPFTRDDVKHRLVGH MTNPVIGTPWQKLDRPVGEEAIEGMDKYWEVANYMGIGQIYDRSNP2MKEPFTRDDVKHRLVGH MTNPVIGTPWQKLDRPVGEEAIEGMDKYWEVANYMGIGQIYDRSNP2MKEPFTRDDVKHRLVGH MTSPVIGTPWKKLNAPVGEEAIEGVDKYWEVANYLGIGQIYDRSNP2MKEPFTREDVKHRLVGH MTSPVIGTPWKKLAPVGEEALEGVDKYWEVANYLGIGQIYDRSNP2MKEPFTREDVKHRLVGH MSTDYSPPAYLQKVDKYWEVANYLGIGQIYDRSNP2MKEPFTREDVKHRLVGH MSTDYSPPAYLQKVDKYWEVANYLGIGQIYDRSNP2MKEPFTREDVKHRLVGH MSTDYSPPAYLQKVDKYWEANYLGYQLYDKNP2LQQFLKASDVKVHPIGH MSTDYSPAYLQKVDKYWEANYLGYQLYDKNP2LQQFLKASDVKVHPIGH MSTDYSPAYLQKVDKYWEANYLGYQLYDKNP2LCQFLKASDVKVHPIGH MSTDYSPAYLQKVDKYWEANYLGYQLYDKNP2LCQFLKASDVKVHPIGH MSTDYSPAYLQKVDKYWEANYLGYQLYDKYP2LQQFLKASDVKVHPIGH MSTDYSPAYLQKVDKYWEANYLGYQLYDKYP2LQQFLKASDVKVHPIGH
_		H97
		••••••••••••••••••••••••••••••••••••••
B breve203 B-lactis B-animalis B-longum_subsp_infantis La_pentosus La_paraplantarum La_plantarum Le_mesenteroides	65 65 65 54 54 56 56	WGT PGLNPILAHITELTAD HOONT VETM GPGHGG PAGTSOSY VDGTYTEYPENIT MEAGLOKPFROFS WGT TPGLNPILAHITELTAD HOONT VETM GPGHGG PAGTAOSY IDGTYTEYYENIT MEAGLOKFFROFS WGT TPGLNPILAHITELTAD HOONT VETM GPGHGG PAGTAOSY IDGTYTEYYENIT MEAGLOKFFROFS WGT TPGLNPILAHITELTAD HOONT VETM GPGHGGPAGTSOSY IDGTYTEYPENIT MEDAGLOKFFROFS WGT TPGLNPILAHITELTAD HOONT VETM GPGHGGPAGTSOSY IDGTYTEYPENIT MEDAGLOKFFROFS WGT TPGLNPILAHITELTAD HOONT VETM GPGHGGPAGTSOSY IDGTYTEYPENIT MEDAGLOKFFROFS WGT TPGLNPILAHITELTAD HOONT VETW GPGHGGOVM VSN SY LDGTYTEYPENIT MEDAGLOKFFROFS WGT TAGON SI VAHLERVINK YGLKM FY VGCPGHGGOVM VSN SY LDGTYTEYPENIT DV GMOKLFKOFS WGT IAGON SI VAHLERVINK YGLMM FY UGCPGHGGOVM VSN SY LDGTYTEYPENIT DV SGMOKLFKOFS WGT IS GOTPILAHITEN AN INK YGLMM FY UGCPGHGGOVM VSN SY LDGTYTEYPENIT OV SGMOKLFKOFS WGT IS GOTPILYAHAN RLINKY GLMM FY VGCPGHGGOVM VSN SY LDGTYTEYPENIT ON VGMOKLFKOFS
		H142
		♦
B_breve203 B_lactis B_animalis B_longum subsp_infantis La_pentosus La_pentosus La_plantarum La_plantarum Le_mesenteroides	135 135 135 135 135 124 124 138 126	YPGGIPSHPAPETPGSIHEGGELGYALSHAYGAVMNNPGLFVPCIIGDGEAETGPLATGWOSNELVNPRT YPGGIPSHPAPETPGSIHEGGELGYALSHAYGAIMDNPGLFVPCIIGDGEAETGPLATGWOSNELVNPRT YPGGIPSHPAPETPGSIHEGGELGYALSHAYGAIMNNPSLFVPCIIGDGEAETGPLATGWOSNELVNPRT YPGGIPSHPAPETPGSIHEGGELGYALSHAYGAIMDNPGLFVPAIVGDGEAETGPLATGWOSNELVNPRT YPGGIPSHPAPETPGSIHEGGELGYALSHAYGAIMDNPGLFVPAIVGDGEAETGPLATGWOSNELVNPRT PPGGIASHAAPETPGSIHEGGELGYALSHAYGAIMDNPGLFVPAIVGDGEAETGPLATGWOSNELVNPRT PPGGVASHAAPETPGSIHEGGELGYSISHAYGAINDNPGLFVPAIVGDGESETGPLATGWOSNELVNPRT PPGGVASHAAPETPGSIHEGGELGYSISHAYGAINDNPGLFVPAIVGDGESETGPLATGWOSNELVNPRT PPGGVASHAAPETPGSIHEGGELGYSISHGVGAILDNPDCIAAVVVGDGESETGPLATSWOSTEFINPIN PPGGVASHAAPETPGSIHEGGELGYSISHGVGAILDNPDCIAAVVVGDGESETGPLATSWOSTEFINPIN PPGGVASHAAPETPGSIHEGGELGYSISHGVGAILDNPDCIAATVVGDGESETGPLATSWOSTEFINPIN PPGGVASHAAPETPGSIHEGGELGYSISHGVGAILDNPDCIAATVVGDGESETGPLATSWOSTEFINPIN
		b
B_breve203 B_lactis B_animalis B_longum_subsp_infantis La_pentosus La_pantarum La_plantarum La_mesenteroides	205 205 205 205 205 194 194 208 196	DGIVLPIP HINGYKIANPTILARISDELHDERGMGYHPYEFVAGPDNEDHUSIHRRPAELPETP DGIVLPIP HINGYKIANPTILARISDEELHDERGMGYHPYEFVAGPDNEDHLSIHRRPAELPETP DGIVLPIP HINGYKIANPTILARISDEELHDERGMGYHPYEFVAGPDNEDHLSIHRRPAELPETP DGIVLPIP HINGYKIANPTILSRISDEELHDERGMGYHPYEFVAGPDDEDHUSIHRRPAELWETIW DGIVLPIP HINGYKIANPTILSRISDEELHBERGMGYBPYEFVAGPDDEDHMSIHRRPAELWETIW DGIVLPIP HINGYKIANPTILSRISDEELHBERGMGYBPYEFVAGPDDEDHMSIHRRPAELWETIW DGAVLPIP NINGFKISNPTIRGRISDEKLHERGHSWESSINNEDIFVEGDDEKVHPYLAKAMDBAVEKIK DGAVLPIP NINGFKISNPTIRGRISDEKIKGVESSMSNEDIFVEGDDEKVHPYLAKAMDBAVEKIK DGAVLPIP NINGFKISNPTISERSBESHEELEDYKGLGYBOPHFVEGTDPAKVHKIXAMDEAVEKIK
_		H320
B_breve203 B_lactis B_animalis B_longum La_pentosus La_pentosus La_plantarum La_plantarum Le_mesenteroides	272 272 272 272 272 261 261 275 266	DEICOIKAAAQTDDMTRPFYDMLIFETPKGWTCEKFIDGK.KTEGSWRAHOVPLASARDTEAHFEVLKGW DEICOIKAAAQTDDMTRPFYDMLIFETPKGWTCEKFIDGK.KTEGSWRAHOVPLASARDTEAHFEVLKGW DEICOIKAAAQTDDMTRPFYDMLIFETPKGWTCEKFIDGK.KTEGSWRAHOVPLASARDTEAHFEVLKGW DEICOIKAAAQTDDNTRPFYDMLIFETPKGWTCEKFIDGK.KTEGSWRAHOVPLASARDTEAHFEVLKGW DEICOIKATAQTDNVHRPYDMLIFETPKGWTCEKFIDGK.KTEGSWRSHOVPLASARDTEAHFEVLKGW DEICOIKATAQTDNVHRPYDMLIFETPKGWTCEKFIDGK.KTEGSWRSHOVPLASARDTEAHFEVLKGW AICKNARENDDATLPVNMIVPRAPKGWTCEKSWDGD.KILGSFRAHGIPIFVDOTDMEHADALVDW AICKNARENDDATLPVNMIVPRAPKGWTCEKSWDGB.KIEGSFRAHGIPIFVDOTDMEHADALVDW AICKNARENNDESRFKWZMIVFRAPKGWTCEKSWDGB.FILGSFRAHGIPIFVDONMEHADALVDW AICKNARENNDESRFKWZMIVFRAPKGWTCEKSWDGB.FILGSFRAHGIPIFVDONMEHADALVDW AICKNARENNDESRFKWZMIVFRAPKGWTCEKSWDGB.FILGSFRAHGIPIFVDONMEHADALVDW
B breve203	341	111 111 111 1111 111 111 111 111 1111 1111
B_lactis B_animalis B_longum B_longum_subsp_infantis La_pentosus La_paraplantarum La_plantarum Le_mesenteroides	341 341 341 327 327 341 336	MEGYKPEELDNADGSIEDVTAPMPKGELRIGANDMANGGRIREDIKUPELDOVEITGVKEYGHGW MEGYKPEELDNADGSIKDVTAPMPKGELRIGANDMANGGRIREDIKUPELDOVEITGVKEYGHGW LEGYKPEELDNADGVKDDVLAPMPKGELRIGANDNANGGVIRNDIKLPNLEDVEVKEVAEYGHGW LEGYKPEELPDANGAVKDDVLAPMPKGELRIGANDNANGGVIRNDIKLPNLEDVEVKEVAEYGHGW LEGYKPEELPDANGAVKDDVLAPMPKGELRIGANDNANGGVIRNDIKLPNLEDVEVKEVAEYGHGW LEGYOPKELPNEDGSIKDDIKEIIPTGDSRMANNTINGGVDRDNKALNDPNFRDKAVDTSKEGA LEGYOPKELPNEDGSIKDDIKEIIPTGDSRMANNTINGGVDPKALNDPNFRDKAVDTSKEGA LKGYKPEELPNEDGSIKDDIKEIIPTGDSRMANNTINGGVDPKALNDPNFRDKAVDTSKEGA MNSYKPEELPNADGSIKDLKAIAIIPGCORMANNTINGGVDRAGKURAVDTSKEGA
		S440
B breve203 B_lactis B_animalis B_longum B_longum_subsp_infantis La_pentosus La_paraplantarum La_paraplantarum	407 407 407 407 390 390	G VEA PRALGAY CRDIIKNNPDS FRIFGEDETASNRLNATYE VT DKOWDNGYLSGLVDEHNAVTGOVT G VEA PRSLGAY CRDIIKNNPDS FRYFGEDETASNRLNATYE VT KKOWDNGYLSALVDENNAVTGOV G OVEA PRSLGAY CRDIIKNNPDS FRIFGEDETASNRLNATYE VT KKOWDNGYLSALVDENNAVTGOV G OVEA PRSLGAY CRDIIKNNPDS FRIFGEDETASNRLAYYE VT KKOWDNGYLSALVDENNAVTGOV G OLEA TR SLGAY TRDIIKNNPRD FRIFGEDETASNRLOASYE VNNKOWDAGYISDEVDEHNHVSGOV G OLEA TR SLGAY TRDIIKNNPRD FRIFGEDETASNRLOASYE VNNKOWDAGYISDEVDEHNHVSGOV NVKODMIVMSDYLRDVIKKNPRD FRIFGEDETASNRLOASYE VNNKOWDAGYISDEVDEHNRVSGOV D NVKODMIVMSDYLRDVIKKNPDN FRIFGEDETASNRLOASYE VNNKOWDAGYISDEVDEHNRVSGOV B D OLDWEDYLRDVIKKNPDN FRIFGEDETASNRLOASYE VNNKOWD HPDSD V DE AGRVLD NVKODMLVMSDYLRDVIKKNPDN FRIFGEDETASNRLYGVFETNROWMED HPDSD QYEA AAGRVLD
Le mesenteroides	406	KRNMDMATLSNYLGAVSQLNPTRFRFFGPDETMSNRLWGLFNVTPROWMEBIKEPODOLLSPTGRIID

Suzuki et al., Supplementary Fig. 1

		E479 ↓	3	7501 ↓				
B breve203 B-lactis B-animalis B-longum B-longum subsp_infantis La_pentosus La_paraplantarum La_plantarum La_nesenteroides	475 475 475 475 458 458 474 474	00000000000 E0	LICRHCIWS LICRHCIWS LICRHCIWS LICRHCIWS LICRHCIWS VICRHCIPS NITCRYCFPS NITCRYCFPS TITCRYCFPS		QQQQQQQQQQQ DSMLNQHAK DSMLNQHAK DSMLNQHAK DSMLNQHAK DSMLTQHPK DSMLTQHPK DSMLTQHPK	Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q	WRKPISSVNI WRKPISSVNI WRKPISSVNI WRKPIASMNI WRKPIASMNI WRKYPSINI WRKYPSINI WRADVPSINI WRADVPSINI	LVSSHVW LVSSHVW LVSSHVW LVSSHVW LVSSHVW LVSSHVW IAASTVF IAASTVF IAASTAF
		H553 H548 N549	2000000	>	0000000	000000	K605	 ►
B breve203 B-lactis B-lanimalis B-longum subsp_infantis La pentosus La pentosus La paraplantarum La_plantarum Le_mesenteroides	545 545 545 545 545 527 527 544 543	R D HIN G F SH Q D P G Y R D HIN G F SH Q D P G Y R D HIN G F SH Q D P G Y R D HIN G F SH Q D P G Y R D HIN G F SH Q D P G Y R D HIN G F SH Q D P G Y Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D HIN G Y TH Q D P G H Q D H N G Y TH Q D P G H M H H H H H H H H H H H H H H H H H H H	SULINKTFNN SVLINKTFNN SVLINKTFNN SVLINKCFHN SVLINKCFHN THLAEKKPE. SHLAEKKE. THLAEKKE.	DHVTNIYFA DHVTNIYFA DHVTNIYFA DHVIGIYFA DHVIGIYFA 	TDANMULAI TDANMULAI TDANMULAI TDANMULAI TDANMULAI ADANSULAV ADANTULAV SDANTULAV	SEKCFKSTNK AEKCFKSTNK AEKCYKSTNK AEKCYKSTNK GDVIFRSQEK GDVIFRSQEK FDKAIQSKQL QERAFSERHK	INAIFAGKOF INAIFAGKOP INAIFAGKOP INAIIAGKOP INAVVTSKHP INVVVTSKHP INLIIASKOP	APTWVTL AATWITL APTWITL AATWLTL AATWLTL RQQWFSI RQQWFSI RPQWFTM RQQWFTM
				b	0000000000	0000000	>	0.000
B breve203 B-lactis B animalis B-longum B-longum_subsp_infantis La_pentosus La_pentosus La_panplantarum La_plantarum Le_mesenteroides	615 615 615 615 594 594 611 610	DEARAEL EAGAAEM DEVRAELEAGAAEM DEVRAELEAGAAEM DEARAELEKGAAAM DEARAELEKGAAAM DEARAELEKGAAAM EARQLVDNGLGIII DEARQLVDNGLGIII DEARQLVDNGLGVVI EARVLVNGLGVVI EARVLANEGLKIII	WASNAENNDE WASNAKSNDE WASNAKSNDE WASTAKNDE WASTAKNDE WASTDQGS.E WASTDQGS.E WASTDQGS.E WASTDHGE.E	VQVVLAAAG VQVVLAAAG VQVVLAAAG AEVVLAAAG PDIVLAAAG PDIVFAAAG PDIVFAAAG PDIVFAAAG VDITFASAG	DVPTQELNA DVPTQEIMA DVPTQEIMA DVPTQEIMA TEPTLETLA TEPTLETLA SEPTTESTA TEPTLETLA	ASDALNKMG. ASDALNKMG. ASDALNKDG. ASDKLKELG. ASDKLKELG. AIQLLHDSFP AIQLLHDSFP AVSILHARFP ALWLINQAFP	. I Z F K VV N V . I Z F K VV N V MZ I Z F V N V EMZ I R F V N V EMZ I R F I N V D V Z F Z V N V	DLLKLOS DLIKLOS DLLSLOS DLLSLOS DLLSLOS DILKLRS DILKLRS DLLKLK. ELLRLOK
		عد	معدوو	 ► 2	لععععع	222 	•	مععمع
B breve203 B-lactis B-animalis B-longum subsp_infantis La_pentosus La_paraplantarum La_plantarum La_mesenteroides	683 683 683 683 663 663 679 679	RENNDEALTDE SKENDEAMSDE PENNDEAMSDE AKENDEALTDE AKENDEALTDE PEKDPRGLSDA KSEPNMNDERELSAE	EFTELFTADK DFADLFTADK EFADIFTADK EFADIFTADK EFDHYFTADK EFDHYFTKDK EFDHYFTKDK EFDHYFTKDK EFNKYFOADT	PVLFAYHSYA PVLFAYHSYA PVLFAYHSYA PVLFAYHSYA PVLFAYHSYA PVVFAFHGYE PVVFAFHGYE PVIFAFHGYE PVIFAYHAYI PVIFGFHAYE	QDVRGLIYI QDVRGLIYI HDVRGLIYI HDVRGLIYI DLVRGLIYI DLVRDIFFI DLVRDIFFI NLIESFFFI	R PINH DIN FHV R PINH DIN FTV R PINH DIN FTV R PINH DIN FNV R PINH DIN FNV R PINH DIN FNV R HIN. HINL HV R HIN. HINL HV R HIN. HNL HV R K FTGD V V	VGYKEQGSTT VGYKEQGSTT HGYEEGSTT HGYEEGSTT HGYEEGSTT HGYEEGSTT HGYEEGST HGYEEGDIT HGYEEGDIT HGYEEGDIT	TPFDMVR TPFDMVR TPYDMVR TPYDMVR TPFDVRV TPFDVRV TPFDVRV TPFDMRV
		معمعمعمع	2222 22.		200000000	. معدود	وووو	
B breve203 B-lactis B-animalis B-longum B-longum_subsp_infantis La_pentosus La_paraplantarum La_plantarum Le_mesenteroides	749 749 749 749 749 728 728 728 743 749	VNDMDRYALQAAALK VNDMDRYALQAAALK VNDMDRYALEAAALE VNRIDRYELTAEALR VNRIDRYELTAEALR NNQMDRFDLAKSAIA MNQMDRFDLAKSAIA RNELDRFHLVKAALL YSHLDRFHQAKEAAE	LIDADKYAD. LIDADKYAD. LIDADKYAD. MIDADKYAD. MIDADKYAD. AQPAMENTG. AQPAMENTG. ATPAYAEKG. ILSANGKIDQ	KIDEI KIDEI KIDEI KIDEI KIDEI AFVQDM AAFVQDM AAFVQSM AAVQSM AAADTFIAKM	NAFRKKAF NEFRKTAF NEFRKTAF EKFRDEAF EKFRDEAF IDNMLAKHN IDNMLAKHN INSILOKHN IDTLAKHF	2 FAVDNGYDI 2 FAVDNGYDI 2 FAVDNGYDI 2 FAVDNGYDH 2 FAVDNGYDH AYIRDAGTDL AYIRDAGTDL 2 YIRAZGTDI 2 VIRAZGTDI 2 VIRAZGTDI	PEFTDWVYPD PEFTDWVYPD PEFTDWVYSG PDYTDWVYSG PDYTDWVYSG PEVNDWQWKG PEVNDWQWKG EEFTDWTWSP	VKVDETQ VKVDETS VKVDETQ VNTDKKG LK LK LK

									•					
B breve203	813	М	L	s	A	т	A	А	т	A	G	D	N	Е
Blactis	813	М	L	s	A	т	A	Α	т	A	G	D	N	Е
Banimalis	813	М	L	s	A	т	A	A	т	A	G	D	N	Е
B-longum	813	А	V	т	A	т	A	A	т	A	G	D	N	Е
B longum subsp infantis	813	A	V	т	A	т	A	A	т	A	G	D	Ν	Е
La pentosus														
La paraplantarum														
La plantarum														
Le mesenteroides														
-														

Suzuki et al., Supplementary Fig. 1, continued





Suzuki et al., Supplementary Fig. 2



Suzuki et al., Supplementary Fig. 3









Suzuki et al., Supplementary Fig. 4



Suzuki et al., Supplementary Fig. 5

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