

C"PrPëPSPsPiPs C,PëPíCí PeP»C-C,PëPS, PIC-PrPíPsPIC-PrP°P»CHPSPëC... P·P°
CḡPμP·PsCḡP±C†C-Cḡ PeC-CÍC,PsPe. PμC-PrPIPëC%PμPSP° P°PeC,PëPIPSC-CÍC,CH
PsCÍC,PμPsPeP»P°CÍC,C-PI, C%Ps CÍC,PëPjCíP»CḡC"C,CHCÍCḡ RANKL, C" PiPsP»PsPIPSPëPj
PjPμPrC-P°C,PsCḡPsPj PrPμCÍC,CḡCíPeC†C-C— PeC-CÍC,PsPe PíCḡPë C—C...
PjPμC,P°CÍC,P°C,PëC±PSPsPjCí CíCḡP°P¶PμPSPSC- C,P° PjC-C"»PsPjPSC-PNë
C...PIPSCḡPsP±C-. P" PμPSPsCÍCíPjP°P± Bḡ" C†Pμ PjPsPSPsPeP»PsPSP°P»CHPSPμ
P°PSC,PëC,C-P»Ps P»CḡPrPëPSPë (IgG2), CḡPePμ P· PIPëCÍPsPePsCḡ P°C,,C-PSPSC-CÍC,Cḡ
C,P° CÍPíPμC†PëC,,C-C±PSC-CÍC,Cḡ PSP°PíCḡP°PIP»CḡC"C,CHCÍCḡ C,P°
P·PíBḡ™ CḡP·CíC"C,CHCÍCḡ P· RANKL, PíPsPíPμCḡPμPrP¶P°CḡC±Pë PIPëPSPëPePSPμPSPSCḡ
PIP·P°C"»PjPsPrC-C— RANKL/RANK C- PíCḡPëP·PIPPrCḡC±Pë PrPs P·PSPëP¶PμPSPSCḡ
PeC-P»CHPePsCÍC,C- C,P° PíPsCÍP»P°P±P»PμPSPSCḡ C,,CíPSPeC†C-C—
PsCÍC,PμPsPeP»P°CÍC,C-PI, C,P°PePëPj C±PëPSPsPj P·PjPμPSC€CíCḡC±Pë
CḡPμP·PsCḡP±C†C-Cḡ C,P° PrPμCÍC,CḡCíPeC†C-Cḡ PeC-CÍC,PsPe, C-PSPPrCíPePsPIP°PSCí
CḡP°PePsPj.

P"C-PiP°PSC,PsPeP»C-C,PëPSPSC- PíCíC...P»PëPSPë PeC-CÍC,PsPe
C...P°CḡP°PeC,PμCḡPëP·CíCḡC,CHCÍCḡ PμPeCÍPíCḡPμCÍC-C"ḡ P»C-PiP°PSPPrCí RANK
PSPμPsPíP»P°CÍC,PëC±PSPëPjPë CÍC,CḡPsPjP°P»CHPSPëPjPë PeP»C-C,PëPSP°PjPë C,P° RANK
PsCÍC,PμPsPeP»P°CÍC,PsPíPsPrC-P±PSPëPjPë PíC-PiP°PSC,CÍCḡPePëPjPë PeP»C-C,PëPSP°PjPë.
Pj PíP°C†C-C"»PSC,C-PI P· PíC-PiP°PSC,PsPeP»C-C,PëPSPSPsCḡ PíCíC...P»PëPSPsCḡ
PeC-CÍC,PsPe PrPμPSPsCÍCíPjP°P± P·PíBḡ™ CḡP·CíC"C,CHCÍCḡ P· P»C-PiP°PSPPrPsPj RANK,
CÍCíC,C,C"PIPs P·PjPμPSC€CíCḡC±Pë PeC-P»CHPeC-CÍC,CH P°P±Ps PμP»C-PjC-PSCíCḡC±Pë
PsCÍC,PμPsPeP»P°CÍC,PsPíPsPrC-P±PSC- PíC-PiP°PSC,CÍCḡPeC- PeP»C-C,PëPSPë. PíPe
PSP°CÍP»C-PrPsPe, P·PjPμPSC€CíC"C,CHCÍCḡ PsCÍC,PμPsP»C-P· C-
PíCḡPsP»C-C,,PμCḡP°C,PëPIPSP° PíCíC...P»PëPSPSP° CÍC,CḡPsPjP° P·P°PjC-C%CíC"C,CHCÍCḡ
PSPμPíCḡPsP»C-C,,PμCḡP°C,PëPIPSPsCḡ PrPëC,,PμCḡPμPSC†C-PNëPsPIP°PSPsCḡ
C%C-P»CHPSPsC,PeP°PSPëPSPSPsCḡ PSPsPíPsCḡ PeC-CÍC,PePsCḡ.

PαP°CḡPjP°PePsPrPëPSP°PjC-C±PSC- PμC,,PμPeC,Pë

P' PeP»C-PSC-C±PSPëC... PrPsCÍP»C-PrP¶PμPSPSCḡC... C,,P°P·Pë P†P† Cí PíP°C†C-C"»PSC,C-PI
P· PíC-P·PSCḡPsCḡ CÍC,P°PrC-C"ḡ P·P»PsCḡPeC-CÍPSPëC... PíCíC...P»PëPS, CḡPeC-
PICḡP°P¶P°CḡC,CH PeC-CÍC,PePë, PíC-PrC€PeC-CḡPSPμ PIPiPμPrPμPSPSCḡ
PíCḡPμPíP°CḡP°C,Cí P†PeCÍPrP¶PμPIP°^{B®} PePsP¶PSC- 4 C,PëP¶PSC- (Q4W) P°P±Ps PePsP¶PSC-
12 C,PëP¶PSC-PI PíCḡPëP·PíPsPrPëP»Ps PrPs C€PIPëPrPePsPíPs P·PSPëP¶PμPSPSCḡ
PjP°CḡPePμCḡC-PI CḡPμP·PsCḡP±C†C-C— PeC-CÍC,PsPe (uNTx/Cr, CÍPëCḡPsPIP°C,PePsPIPëPNë
CTx) C-P· CÍPμCḡPμPrPSC-Pj P·PSPëP¶PμPSPSCḡPj PSP° CḡC-PIPSC- PíCḡPëP±P»PëP·PSPs
80 % PrP»Cḡ uNTx/Cr, CḡPePμ PIPëPSPëPeP°P»Ps PíCḡPsC,CḡPíPsPj 1 C,PëP¶PSCḡ
PSPμP·P°P»PμP¶PSPs PIC-Pr PíPsPíPμCḡPμPrPSCḡPsPíPs P»C-PeCíPIP°PSPSCḡ
P±C-C,,PsCÍC,,PsPSP°C,PsPj P°P±Ps PIC-Pr PIPëC...C-PrPSPsPíPs CḡC-PIPSCḡ uNTx/Cr. P'
PeP»C-PSC-C±PSPëC... PrPsCÍP»C-PrP¶PμPSPSCḡC... C,,P°P·Pë P†P†P† Cí PíP°C†C-C"»PSC,C-PI
C-P· PíC-P·PSCḡPsCḡ CÍC,P°PrC-C"ḡ P·P»PsCḡPeC-CÍPSPëC... PíCíC...P»PëPS, CḡPeC-
PICḡP°P¶P°CḡC,CH PeC-CÍC,PePë, CÍPμCḡPμPrPSC" P·PSPëP¶PμPSPSCḡ uNTx/Cr PSP°
CḡC-PIPSC- PíCḡPëP±P»PëP·PSPs 80 % PíC-PrC,CḡPëPjCíPíP°P»PsCÍCḡ PíPeP»CḡC±PSPs PrPs
49-PíPs C,PëP¶PSCḡ P»C-PeCíPIP°PSPSCḡ PíCḡPμPíP°CḡP°C,PsPj P†PeCÍPrP¶PμPIP°^{B®} (PíPs
120 PjPí PePsP¶PSC- 4 C,PëP¶PSC- (Q4W)).

P†PjCíPSPsPiPμPSPSC-CÍC,CH

P' PeP»C-PSC-C±PSPëC... PrPsCÍP»C-PrP¶PμPSPSCḡC... PSPμ P±CíP»Ps PIPëCḡPIP»PμPSPs
PSPμPNëC,CḡP°P»C-P·CíCḡC±PëC... P°PSC,PëC,C-P» PrPs PrPμPSPsCÍCíPjP°P±Cí Cí
PíP°C†C-C"»PSC,C-PI C-P· CḡPsP·PIPëPSPμPSPsCḡ CÍC,P°PrC-C"ḡ CḡP°PeCí P°P±Ps

C, P° C₃P°PeCf PᵢPᵤC₃PᵤPrPjC-C...CfC₃PsPIP₅C— P·P°P»PsP·Pë.

P PëCf. 1. P“C₃P°C,,C-PePë PᵤP°PᵢP»P°PSP° B₃“ PᵤPᵤPN₆C”C₃P° PrP»Cᵢ C₃P°CfCf PᵢPᵤC₃CεPsC— PᵤPᵤ, CᵢPεP° PIPëPSPëPeP»P° PᵢC-Pr C₃P°Cf PrPsCfP»C-PrPᵤPSPSCᵢ

PᵤC₃PsPᵢC₃PᵤCfCfPIP°PSPSCᵢ P·P°C...PIP₅C₃C₃PIP°PSPSCᵢ C, P° P·P°PᵢP°P»CᵢPSP° PIPëPᵤPᵢP°PSC-CfC, Cᵢ PᵢC₃Pë PjPᵤC, P°CfC, P°P·P°C... CfPsP»C-PrPSPëC... PᵢCfC...P»PëPS Cf PeC-CfC, PePë

PᵤC₃PsPᵢC₃PᵤCfCfPIP°PSPSCᵢ P·P°C...PIP₅C₃C₃PIP°PSPSCᵢ P±CfP»Ps P°PSP°P»PsPᵢC-C₃PSPëPj Cf PᵢC₃CfPᵢP°C... PᵢC₃PᵤPᵢP°C₃P°C, Cf P†PeCfPrPᵤPIP°^{B®} C, P° P·PsP»PᵤPrC₃PsPSPsPIP₅C— PePëCfP»PsC, Pë Pᵢ CfCfC-C... C, C₃CᵢPsC... PrPsCfP»C-PrPᵤPSPSCᵢC... C, P° Pᵢ PᵢPsPᵢPᵤC₃PᵤPrPSCᵢPs PIPëP·PSP°C₃PᵤPSPsPjCf PsP±B₃™ C”PrPSP°PSPsPjCf P°PSP°P»C-P·C- C, C₃CᵢPsC... PrPsCfP»C-PrPᵤPSPSCᵢ.

P’ PrPsCfP»C-PrPᵤPSPSCᵢC... 1, 2 C, P° 3 P·P°PᵢP°P»CᵢPSP° PIPëPᵤPᵢP°PSC-CfC, Cᵢ P±CfP»P° P·C-CfC, P°PIPSPsCᵢ Cf PᵢC₃CfPᵢP°C... PᵢC₃PᵤPᵢP°C₃P°C, Cf P†PeCfPrPᵤPIP°^{B®} C, P° P·PsP»PᵤPrC₃PsPSPsPIP₅C— PePëCfP»PsC, Pë Cf PᵢP°C†C-C”PSC, C-PI C-P· PᵢPsCεPëC₃PᵤPSPëPjPë CfC, P°PrC-CᵢPjPë P·P»PsCᵢPeC-CfPSPëC... PᵢCfC...P»PëPS P· CfC₃P°PᵤPSPSCᵢPj PeC-CfC, PsPe: PᵢP°C†C-C”PSC, Pë P· C₃P°PePsPj PjPsP»PsC₃PSPsC— P·P°P»PsP·Pë (PIC-PrPSPsCεPᵤPSPSCᵢ C₃PëP·PëPeC-PI [95 % P”P†] 0,95 [0,81; 1,11]), PᵢP°C†C-C”PSC, Pë P· C₃P°PePsPj PᵢPᵤC₃PᵤPrPjC-C...CfC₃PsPIP₅C— P·P°P»PsP·Pë (PIC-PrPSPsCεPᵤPSPSCᵢ C₃PëP·PëPeC-PI [95 % P”P†] 1,03 [0,91; 1,17]) C, P° PᵢP°C†C-C”PSC, Pë P· C-PSCεPëPjPë CfPsP»C-PrPSPëPjPë PᵢCfC...P»PëPSP°PjPë P°P±Ps PjC-C”P»PsPjPSPsCᵢ C...PIP₅C₃PsP±PsCᵢ (PIC-PrPSPsCεPᵤPSPSCᵢ C₃PëP·PëPeC-PI [95 % P”P†] 0,95 [0,83; 1,08]). *Post-hoc* P°PSP°P»C-P· Pᵢ PrPsCfP»C-PrPᵤPSPSC- 2 (PᵢP°C†C-C”PSC, Pë P· C-PSCεPëPjPë CfPsP»C-PrPSPëPjPë PᵢCfC...P»PëPSP°PjPë P°P±Ps PjC-C”P»PsPjPSPsCᵢ C...PIP₅C₃PsP±PsCᵢ) PIPëP·PSP°C₃PᵤPᵢP°P»CᵢPSPcᵢ PIPëPᵤPᵢP°PSC-CfC, Cᵢ PᵢC₃Pë PSP°CᵢPIPSPsCfC, C- PsPrPSC-C”C— P· 3 C, PëPᵢC-PI PᵢCfC...P»PëPS P· PIPëPePsC₃PëCfC, P°PSPSCᵢPj CfC, C₃P°C, PëC,, C-PeP°C†C-C— (PSPᵤPrC₃C-P±PSPsPeP»C-C, PëPSPSPëPN₆ C₃P°Pe P»PᵤPᵢPᵤPSPSCᵢ, PjC-C”P»PsPjPSP° C...PIP₅C₃PsP±P° C, P° C-PSCεC-). P—P°PᵢP°P»CᵢPSP° PIPëPᵤPᵢP°PSC-CfC, Cᵢ P±CfP»P° PrPsPICεPsCᵢ Cf PᵢC₃CfPᵢC- PᵢC₃PᵤPᵢP°C₃P°C, Cf P†PeCfPrPᵤPIP°^{B®} PᵢC₃Pë PSPᵤPrC₃C-P±PSPsPeP»C-C, PëPSPSPsPjCf C₃P°PeCf P»PᵤPᵢPᵤPSPSCᵢ (PIC-PrPSPsCεPᵤPSPSCᵢ C₃PëP·PëPeC-PI [95 % P”P†] 0,79 [0,65; 0,95]; n = 702), Cf PᵢC₃CfPᵢC- P·PsP»PᵤPrC₃PsPSPsPIP₅C— PePëCfP»PsC, Pë PᵢC₃Pë PjC-C”P»PsPjPSC-PN₆ C...PIP₅C₃PsP±C- (PIC-PrPSPsCεPᵤPSPSCᵢ C₃PëP·PëPeC-PI [95 % P”P†] 2,26 [1,13; 4,50]; n = 180) C, P° P°PSP°P»PsPᵢC-C₃PSPsCᵢ Cf PᵢC₃CfPᵢC- PᵢC₃PᵤPᵢP°C₃P°C, Cf P†PeCfPrPᵤPIP°^{B®} C, P° P·PsP»PᵤPrC₃PsPSPsPIP₅C— PePëCfP»PsC, Pë PᵢC₃Pë C-PSCεPëC... C, PëPᵢP°C... PᵢCfC...P»PëPS (PIC-PrPSPsCεPᵤPSPSCᵢ C₃PëP·PëPeC-PI [95 % P”P†] 1,08 (0,90; 1,30); n = 894). PᵢPᵤ PrPsCfP»C-PrPᵤPSPSCᵢ PSPᵤ PePsPSC, C₃PsP»CᵢPIP°P»PsCfCᵢ C%PsPrPs PᵢC₃PsPᵢPSPsCfC, PëC₃PSPëC... C,, P°PeC, PsC₃C-PI C, P° PᵢC₃PsC, PëPᵢCfC...P»PëPSPSPsPᵢPs P»C-PeCfPIP°PSPSCᵢ. P’ PsP±B₃™ C”PrPSP°PSPsPjCf PᵢPsPᵢPᵤC₃PᵤPrPSCᵢPs PIPëP·PSP°C₃PᵤPSPsPjCf P°PSP°P»C-P·C- PrPsCfP»C-PrPᵤPSPSCᵢ 1, 2 C, P° 3 P·P°PᵢP°P»CᵢPSP° PIPëPᵤPᵢP°PSC-CfC, Cᵢ P±CfP»P° P°PSP°P»PsPᵢC-C₃PSPsCᵢ Cf

PiCḡCfPiC- PiCḡPμPiP°CḡP°C,Cr P†PeCfPrP¶PμPIP°^B C,P° P·PsP»PμPrCḡPsPSPsPIPsC—
PePëCfP»PsC,Pë (PIC-PrPSPsCεPμPSPSCḡ CḡPëP·PëPeC-PI [95 % P”P†] 0,99 [0,91; 1,07]).

P’PiP»PëPI PSP° P±C-P»Cḡ

PḡP°Cf PrPs P·PjPμPSCεPμPSPSCḡ P±PsP»Cḡ (C,PsP±C,Ps P·PSPëP¶PμPSPSCḡ PSP°
≥ 2 P±P°P»Pë PIC-Pr PiPsC†P°C,PePsPIPëC... P·PSP°C†PμPSCḡ P·P° CεPeP°P»PsCḡ
PsC†C-PSPePë P±PsP»Cḡ PjPsPrPëC,,C-PePsPIP°PSPsPiPs PePsCḡPsC,PePsPiPs
PsPiPëC,CfPIP°P»CḡPSPëPeP° PsC†C-PSPePë P±PsP»Cḡ [BPI-SF]) P±CfPI
P°PSP°P»PsPiC-C†PSPëPj PrP»Cḡ PrPμPSPsCfCfPjP°P±Cf C,P° P·PsP»PμPrCḡPsPSPsPIPsC—
PePëCfP»PsC,Pë PI PePsP¶PSPsPjCf PrPsCfP»C-PrP¶PμPSPSC- C,P° PI
C-PSC,PμPiCḡPsPIP°PSPëC... P°PSP°P»C-P·P°C.... P’ post-hoc P°PSP°P»C-P·C-
PePsPjP±C-PSPsPIP°PSPëC... PrP°PSPëC... PjPμPrC-P°PSP° C†P°CfCf PrPs PiPsCfPëP»PμPSPSCḡ
P±PsP»Cḡ (> 4 P±P°P»C-PI PiPsCfPëP»PμPSPSCḡ P·P° CεPeP°P»PsCḡ PsC†C-PSPePë
P±PsP»Cḡ) Cr PiP°C†C-C”PSC,C-PI P· P»PμPiPePëPj P±PsP»PμPj P°P±Ps P±PμP· P±PsP»Cḡ PSP°
PIPëC...C-PrPSPsPjCf CḡC-PIPSC- P±CfPI P±C-P»CḡCεPëPj PrP»Cḡ PiCḡPμPiP°CḡP°C,Cf
P†PeCfPrP¶PμPIP°^B Cr PiPsCḡC-PIPSCḡPSPSC- C-P· P·PsP»PμPrCḡPsPSPsPIPsCḡ
PePëCfP»PsC,PsCḡ (198 PiCḡPsC,Pë 143 PrPSC-PI) (p = 0,0002).

PḡP»C-PSC-C†PSP° PμC,,PμPeC,PëPIPSC-CfC,Cḡ Cr PiP°C†C-C”PSC,C-PI C-P·
PjC-C”P»PsPjPSPsCḡ C...PIPsCḡPsP±PsCḡ

Pj PjC-P¶PSP°CḡPsPrPSPsPjCf CḡP°PSPrPsPjC-P·PsPIP°PSPsPjCf (1:1) PiPsPrPIC-PMεPSPs
CfP»C-PiPsPjCf P°PeC,PëPIPSPs PePsPSC,CḡPsP»CḡPsPIP°PSPsPjCf PrPsCfP»C-PrP¶PμPSPSC-
PiCḡPμPiP°CḡP°C, P†PeCfPrP¶PμPIP°^B PiPsCḡC-PIPSCḡPIP°P»Pë C-P·
P·PsP»PμPrCḡPsPSPsPIPsCḡ PePëCfP»PsC,PsCḡ Cr PiP°C†C-C”PSC,C-PI C-P· PIPiPμCḡCεPμ
PrC-P°PiPSPsCfC,PsPIP°PSPsCḡ PjC-C”P»PsPjPSPsCḡ C...PIPsCḡPsP±PsCḡ
(PrPsCfP»C-PrP¶PμPSPSCḡ 4).

Pj C†CḡPsPjCf PrPsCfP»C-PrP¶PμPSPSC- 1718 PiP°C†C-C”PSC,C-PI C-P· PjC-C”P»PsPjPSPsCḡ
C...PIPsCḡPsP±PsCḡ P·C- C%PsPSP°PMεPjPμPSCεPμ PsPrPSPëPj PeC-CfC,PePsPIPëPj
PIPsPiPSPëC%PμPj P±CfP»Pë CḡP°PSPrPsPjC-P·PsPIP°PSC- PrP»Cḡ PiC-PrCεPeC-CḡPSPsPiPs
PIPIPμPrPμPSPSCḡ PiCḡPμPiP°CḡP°C,Cr P†PeCfPrP¶PμPIP°^B Cr PrPsP·C- 120 PjPi PePsP¶PSC-
4 C,PëP¶PSC- (Q4W) C†Pë PIPSCfC,CḡC-CεPSCḡPsPIPμPSPSPsPiPs PIPIPμPrPμPSPSCḡ
P·PsP»PμPrCḡPsPSPsPIPsC— PePëCfP»PsC,Pë Cr PrPsP·C- 4 PjPi PePsP¶PSC- 4 C,PëP¶PSC-
(PePsCḡPμPeC†C-Cḡ PrPsP·Pë PiCḡPsPIPsPrPëP»P°CfCḡ P· CrCḡP°C...CfPIP°PSPSCḡPj
C,,CfPSPeC†C-C— PSPëCḡPsPe). PμPμCḡPIPëPSPSPsCḡ PeC-PSC†PμPIPsCḡ C,PsC†PePsCḡ
PrPsCfP»C-PrP¶PμPSPSCḡ P±CfP»P° PrPμPjPsPSCfC,CḡP°C†C-Cḡ PSPμPjPμPSCεPsC—
PμC,,PμPeC,PëPIPSPsCfC,C- PiCḡPμPiP°CḡP°C,Cr P†PeCfPrP¶PμPIP°^B C%PsPrPs PiPsCḡPIPë
PiPμCḡCεPsC— PḡPμ PiPsCḡC-PIPSCḡPSPs C-P· P·PsP»PμPrCḡPsPSPsPIPsCḡ
PePëCfP»PsC,PsCḡ. P”Ps PIC,PsCḡPëPSPSPëC... PeC-PSC†PμPIPëC... C,PsC†PsPe
PSP°P»PμP¶P°P»Pë P±C-P»CḡCε PIPëCfPsPeP° PμC,,PμPeC,PëPIPSC-CfC,Cḡ C%PsPrPs
C†P°CfCf PrPs PiPμCḡCεPsC— PḡPμ, PrPs PiPμCḡCεPsC— C,P° PSP°CfC,CfPiPSPsC— PḡPμ C-
P·P°PiP°P»CḡPSP° PIPëP¶PëPIP°PSC-CfC,Cḡ. PḡPμ PIPëP·PSP°C†P°P»PëCfCḡ C,P°PePëPj
C†PëPSPsPj: PiP°C,PsP»PsPiC-C†PSPëPMε PiPμCḡPμP»PsPj (PIPμCḡC,PμP±CḡP°P»CḡPSPëPMε
C†Pë PSPμPIPμCḡC,PμP±CḡP°P»CḡPSPëPMε), PiCḡPsPjPμPSPμPIP° C,PμCḡP°PiC-Cḡ
PeC-CfC,PsPe (Cf C,, C†. C-P· P·P°CfC,PsCfCfPIP°PSPSCḡPj CḡP°PrC-PsC-P·PsC,PsPiC-PI),
C...C-CḡCfCḡPiC-C†PSPμ PIC,CḡCfC†P°PSPSCḡ PSP° PeC-CfC,PeP°C... C†Pë
PePsPjPiCḡPμCfC-Cḡ CfPiPëPSPSPsPiPs PjPsP·PeCf.

P’ PsP±PsC... PiCḡCfPiP°C... PrPsCfP»C-PrP¶PμPSPSCḡ 54,5 % PiP°C†C-C”PSC,C-PI PjP°P»Pë
PiCḡPsPμC,Pë P°PIC,PsP»PsPiC-C†PSCf C,CḡP°PSCfPiP»P°PSC,P°C†C-Cḡ

СГГ,PsPIP±CfCГPsPIPëC... PeP»C-C,PëPS PiCfPiPsPIPëPSPSPsC— PeCГPsPIC- (PBSC), 95,8 % PIPëPePsCГPëCГГ,PsPICfPIP°P»Pë/ PiP»P°PSCfPIP°P»Pë PIPëPePsCГPëCГГ,PsPICfPIP°C,Pë PSPsPIPëP№ PiCГPsC,PëPjC-C”P»PsPjPSPëP№ PiCГPµPiP°CГP°C, (P±PsCГC,PµP·PsPjC-P±, P»PµPSP°P»C-PrPsPjC-Pr C±Pë C,P°P»C-PrPsPjC-Pr) CГPe C,PµCГP°PiC-CГ PiPµCГCëPsC— P»C-PSC-C—, P° 60,7 % PIP¶Pµ PjP°P»Pë PьPµ CГP°PSC-CëPµ. P’ PsP±PsC... PiCГCfPiP°C... PeC-P»CГPeC-CГГ,СГ PiP°C†C-C”PSC,C-PI C-P· PjC-C”P»PsPjPSPsCГ C...PIPsCГPsP±PsCГ PSP° CГГ,P°PrC-C— P†, P†P† C,P° P†P†P† P·P° PьC-P¶PSP°CГPsPrPSPsCГ CГPëCГГ,PµPjPsCГ CГГ,P°PrC-CГPIP°PSPSCГ (ISS) PSP° PjPsPjPµPSC, PIPëP·PSP°C±PµPSPSCГ PrC-P°PiPSPsP·Cf CГГ,P°PSPsPIPëP»P° 32,4 %, 38,2 % C,P° 29,3 % PIC-PrPiPsPIC-PrPSPs.

PьPµPrC-P°PSP° PeC-P»CГPePsCГГ,C- PIPµPrPµPSPëC... PrPsP· CГГ,P°PSPsPIPëP»P° 16 PrP»CГ PiCГPµPiP°CГP°C,Cf P†PeCГPrP¶PµPIP°^{B®} C,P° 15 вГ” PrP»CГ P·PsP»PµPrCГPsPSPsIPsC— PePëCГP»PsC,Pë.

P PµP·CfP»CГC,P°C,Pë PµC,,PµPeC,PëPIPSPsCГГ,C- Cf PrPsCГP»C-PrP¶PµPSPSC- 4 PiCГPµPrCГГ,P°PIP»PµPSPs PSP° CГPëCГГCfPSPeCf 2 C,P° Cf C,P°P±P»PëC†C- 2.

P PëCГ. 2. P”CГP°C,,C-PePë PьP°PiP»P°PSP° вГ” PьPµP№C”CГP° PrP»CГ C±P°CГCf PrPs PiPµCГCëPsC— PьPµ, C%Ps PIPëPSPëPeP»P° Cf PiP°C†C-C”PSC,C-PI C-P· PIPiPµCГCëPµ PrC-P°PiPSPsCГГ,PsPIP°PSPsCГ PjC-C”P»PsPjPSPsCГ C...PIPsCГPsP±PsCГ

PÿP°P±P»PëC†CГ 2. P PµP·CfP»CГC,P°C,Pë PµC,,PµPeC,PëPIPSPsCГГ,C- PrP»CГ PiCГPµPiP°CГP°C,Cf P†PeCГPrP¶PµPIP°^{B®} PiPsCГC-PIPSCГPSPs C-P· P·PsP»PµPrCГPsPSPsIPsCГ PePëCГP»PsC,PsCГ Cf PiP°C†C-C”PSC,C-PI C-P· PIPiPµCГCëPµ PrC-P°PiPSPsCГГ,PsPIP°PSPsCГ PjC-C”P»PsPjPSPsCГ C...PIPsCГPsP±PsCГ

PrPsPeP°P·PSPëPe	P†PeCГPrP¶PµPIP° ^{B®} (N = 859)	P—PsP»PµPrCГPsPSPsPIP° PePëCГP»PsC,P° (N = 859)
PrPµCГCëP° PьPµ		
PьC-P»CГPeC-CГГ,СГ PiP°C†C-C”PSC,C-PI P· PьPµ (%)	376 (43,8)	383 (44,6)
PьPµPrC-P°PSP° C±P°CГCf PrPs PьPµ (PjC-CГCГC†C-)	22,8 (14,7; PkPh)	23,98 (16,56; 33,31)
P’C-PrPSPsCëPµPSPSCГ CГPëP·PëPeC-PI (95 % P”P†)	0,98 (0,85; 1,14)	
PrPµCГCëP° C,P° PSP°CГГ,CfPiPSC- PьPµ		
PÿPµCГPµPrPSCГ PeC-P»CГPeC-CГГ,СГ PiPsPrC-P№/PiP°C†C-C”PSC,	0,66	0,66
PьPsPµC,,C-C†C-C”PSC, PIC-PrPSPsCëPµPSPSCГ (95 % P”P†)	1,01 (0,89; 1,15)	
PrPsCëPëCГPµPSC-CГГ,СГ PeC-CГГ,PePsPIPëC... PiPsPrC-P№ PI CГC-Pe	0,61	0,62

PrPsCfP»C-PrP¶PµPSPSC¶, Cr C¶PePëC... CfP¶PsCfC,PµC¶C-PiP°P»P°CfC¶
P¶PsC±P°C,PePsPIP° PIC-PrP¶PsPIC-PrC¶ PSP° P·P°CfC,PsCfCfPIP°PSPSC¶
P¶C¶PµP¶P°C¶P°C,Cf P¶PeCfP¶P¶PµPIP°^B (PSP°P¶C¶P¶PeP»P°Pr, Cr C¶P°P·C-
C¶PµC¶P¶P¶PICf P·P°C...PIPSc¶C¶PIP°PSPSC¶).

P°PsCfP»C-PrP¶PµPSPSC¶ 5 PIPeP»C¶C±P°P»Ps 37 PrPsC¶PsCfP»PëC... P¶P°C¶C-C°PSC,C-PI P·
PiC-CfC,PsP»PsPiC-C±PSPs P¶C-PrC,PIPµC¶P¶PµPSPëPjPë
PSPµC¶PµP·PµPeC,P°P±PµP»C¶PSPëPjPë P°P±Ps C¶PµC¶P¶P¶PICfC¶C±PëPjPë
PiC-PiP°PSC,PsPeP»C-C,PëPSPSPëPjPë PiCfC...P»PëPSP°PjPë PeC-CfC,PsPe. P¶CfPSPsPIPSPsC¶
PeC-PSC¶PµPIPSc¶ C,PsC±PePsC¶ PrPsCfP»C-PrP¶PµPSPSC¶ P±CfP»P°
PsP±b¶TM C°PeC,PëPIPSP° PIC-PrP¶PsPIC-PrC¶ Cr P¶P°C¶C-C°PSC,C-PI, C¶PeP°
PIPëP·PSP°C±P°P»P°CfC¶ C¶Pe PµP»C-PjC-PSP°C¶C-C¶ PiC-PiP°PSC,CfC¶PePëC...
PeP»C-C,PëPS P¶C¶PëPSP°P¶PjPSC- PSP° 90 % P¶PsC¶C-PIPSC¶PSPs P· PIPëC...C-PrPSPëPj
C¶C-PIPSPµPj (P°P±Ps P¶PsPIPSP° PµP»C-PjC-PSP°C¶C-C¶ PiC-PiP°PSC,CfC¶PePëC...
PeP»C-C,PëPS, C¶PeC%Ps C—C...PSC¶ C±P°CfC,PeP° CfC,P°PSPsPIPëP»P° PjPµPSCëPµ 5 %
P¶CfC...P»PëPSPSPëC... PeP»C-C,PëPS), P°P±Ps C¶Pe PIC-PrCfCfC,PSC-CfC,C¶
P¶C¶PsPiC¶PµCfCfPIP°PSPSC¶ C¶C-P»C¶P¶PsPiPs PiCfC...P»PëPSPSPsPiPs
PsCfPµC¶PµPrPeCf, P¶C-PrC,PIPµC¶P¶PµPSP° C¶PµP·CfP»C¶C,P°C,P°PjPë
C¶PµPSC,PiPµPSPsP»PsPiC-C±PSPsPiPs PrPsCfP»C-PrP¶PµPSPSC¶ PI C¶P°P·C-
PIC-PrCfCfC,PSPsCfC,C- PrP°PSPëC... PiC-CfC,PsPiP°C,PsP»PsPiC-C±PSPsPiPs
PrPsCfP»C-PrP¶PµPSPSC¶. P— 35 P¶P°C¶C-C°PSC,C-PI, PIPeP»C¶C±PµPSPëC... PI P°PSP°P»C-P·
PµC,,PµPeC,PëPIPSPsCfC,C-, 85,7 % (95 % P°P¶: 69,7; 95,2) PIC-PrP¶PsPIC-PrP°P»Pë PSP°
P»C-PeCfPIP°PSPSC¶ P¶C¶PµP¶P°C¶P°C,PsPj P¶PeCfP¶P¶PµPIP°^B. P¶C¶PëC,PµC¶C-C—
PIC-PrP¶PsPIC-PrC- PSP° P»C-PeCfPIP°PSPSC¶ P·P°PrPsPiPsP»C¶PSC¶P»Pë PICfC-
20 P¶P°C¶C-C°PSC,C-PI (100 %), Cr C¶PePëC... P±CfP»Pë PsC,C¶PëPjP°PSC- PrP°PSC-
PiC-CfC,PsPiP°C,PsP»PsPiC-C±PSPsPiPs PrPsCfP»C-PrP¶PµPSPSC¶. P— 15 P¶P°C¶C-C°PSC,C-PI,
C¶PeC- P·P°P»PëCëPëP»PëCfC¶, 10 (67 %) PSPµ P¶PsPeP°P·P°P»Pë
P¶C¶PsPiC¶PµCfCfPIP°PSPSC¶ C¶C-P»C¶P¶PsPiPs PiCfC...P»PëPSPSPsPiPs
PsCfPµC¶PµPrPeCf P·P° C¶PµP·CfP»C¶C,P°C,P°PjPë C¶PµPSC,PiPµPSPsP»PsPiC-C±PSPëC...
PrPsCfP»C-PrP¶PµPSC¶.

P°PsCfP»C-PrP¶PµPSPSC¶ 6 PIPeP»C¶C±P°P»Ps 535 PrPsC¶PsCfP»PëC... P°P±Ps
P¶C-PrP»C-C,PeC-PI P· PrPsP·C¶C-P»PsC¶ PeC-CfC,PePsPIPSc¶ CfPëCfC,PµPjPsC¶, C¶PeC-
PjP°C¶C,C¶ PiC-PiP°PSC,PsPeP»C-C,PëPSPSCf P¶CfC...P»PëPSCf PeC-CfC,PsPe. P°C-Pe 28
P¶P°C¶C-C°PSC,C-PI C-P· C¶C-C°C— PiC¶CfP¶Pë CfC,P°PSPsPIPëPI PIC-Pr 12 PrPs
17 C¶PsPeC-PI. P¶P°C¶C-C°PSC,Pë P±CfP»Pë C¶PsP·P¶PsPrC-P»PµPSC- PrPs PsPrPSC-C°C— P·
C,C¶C¶PsC... PePsPiPsC¶C,: PrPs PePsPiPsC¶C,Pë 1 PIC...PsPrPëP»Pë P¶P°C¶C-C°PSC,Pë P·
PSPµPsPiPµC¶P°P±PµP»C¶PSPëPj P·P°C...PIPSc¶C¶PIP°PSPSC¶Pj (PSP°P¶C¶P¶PeP»P°Pr,
PeC¶PëP¶PsPIC-, C...C¶PµP±PµC,PSC- P°P±Ps PjPSPsP¶PëPSPSC- P¶CfC...P»PëPSPSC-
PsCfPµC¶PµPrPePë, P·PsPeC¶PµPjP° P· PjPµC,P°CfC,P°P·P°PjPë PI P»PµPiPµPSC-); PrPs
PePsPiPsC¶C,Pë 2 PIC...PsPrPëP»Pë P¶P°C¶C-C°PSC,Pë P· PsPiPµC¶P°P±PµP»C¶PSPëPj
P·P°C...PIPSc¶C¶PIP°PSPSC¶Pj, Cr C¶PePëC... P·P°P¶P»P°PSPsPIP°PSPµ
C...C-C¶CfC¶PiC-C±PSPµ PIC,C¶CfCfP°PSPSC¶ P¶PsPiP¶TM C¶P·CfPIP°P»PsCfC¶ P·
C,C¶P¶PePëPjPë PSP°CfP»C-PrPeP°PjPë (PSP°P¶C¶P¶PeP»P°Pr, C¶PµP·PµPeC¶C-C¶
CfCfPiP»PsP±P°, P°PjP¶CfC,P°C¶C-C¶ PeC-PSC¶C-PIPePë P°P±Ps
PiPµPjC-P¶PµP»C¶PIPµPeC,PsPjC-C¶); PrPs PePsPiPsC¶C,Pë 3 PIC...PsPrPëP»Pë
P¶P°C¶C-C°PSC,Pë, C¶PeC- P¶PµC¶PµP¶P¶CëP»Pë PI C¶Pµ PrPsCfP»C-PrP¶PµPSPSC¶
PiC-CfP»C¶ CfC±P°CfC,C- PI PrPsCfP»C-PrP¶PµPSPSC- 5. P°PsP»PsPIPSP° PjPµC,P°
P¶PsP»C¶PiP°P»P° PI PsC¶C-PSC¶PIP°PSPSC- P¶C¶PsC,,C-P»C¶ P±PµP·P¶PµPePë
PrPµPSPsCfCfPjP°P±Cf Cr P¶P°C¶C-C°PSC,C-PI C-P· PiC-PiP°PSC,PsPeP»C-C,PëPSPSPsC¶
PiCfC...P»PëPSPsC¶ PeC-CfC,PsPe. P°Ps PIC,PsC¶PëPSPSPëC... PeC-PSC¶PµPIPëC... C,PsC±PsPe

PrPsCfP»C-PrP¶PµPSPSC¶ PSp°P»PµP¶P°P»Pë: PrP»C¶ PePsPiPsC¶C,Pë 1 B¶ C¶P°C¶ PrPs PiC¶PsPiC¶PµC¶C¶P¶P°PSPSC¶ P·P°C...PIPsC¶C¶P¶P°PSPSC¶ (P·P° PsC¶C-PSPePsC¶ PrPsCfP»C-PrPSPëPeP°); PrP»C¶ PePsPiPsC¶C,Pë 2 B¶ C¶P°C¶C,PeP° PiP°C¶C-C"psc,C-PI, C¶PePëPj PrPs 6-PiPs PjC-C¶C¶C¶C¶ PSpµ PiC¶PsPIPsPrPëP»Pë P¶PsPrPSPsPiPs C...C-C¶C¶C¶PiC-C¶PSPsPiPs PIC,C¶C¶C¶P°PSPSC¶.

P—P° C¶PµP·CfP»CHC,P°C,P°PjPë P·P°PeP»C¶C¶PSPsPiPs P°PSP°P»C-P·C¶ PrP°PSPëC... C¶ PePsPiPsC¶C,C- 1 PiC¶PsPiC¶PµC¶C¶P¶P°PSPSC¶ P·P°C...PIPsC¶C¶P¶P°PSPSC¶ P·P°C,,C-PeC¶PsPIP°PSPs C¶ 28 C-P· 260 PiP°C¶C-C"psc,C-PI, C¶PeC- PsC,C¶PëPjP°P»Pë P»C-PeC¶PIP°PSPSC¶ (10,8 %). Pj PePsPiPsC¶C,C- 2 PrPs PjC-C¶C¶C¶C¶ 6 PSpµ PiC¶PsPIPsPrPëP»Pë C...C-C¶C¶C¶PiC-C¶PSPµ PIC,C¶C¶C¶P°PSPSC¶ C¶ 219 P· 238 (92,0 % P"Pt, 95 % P"Pt: 87,8 %, 95,1 %) PiP°C¶C-C"psc,C-PI, C¶PeC- PiC-PrP»C¶PIP°C¶C,CH PsC¶C-PSC¶P¶P°PSPSC¶ C- C¶PePëPj PiC¶PsPIPsPrPëP»Pë P»C-PeC¶PIP°PSPSC¶ PiC¶PµPiP°C¶P°C,PsPj P¶PeC¶PrP¶PµPIP°^{B®}. Pj PePsPiPsC¶C,C- 2 C¶ 82 (34,3 %) P· 239 PiP°C¶C-C"psc,C-PI, C¶ C¶PePëC... PSP° PIPëC...C-PrPSPsPjC¶ C¶C-PIPSC- P°P±Ps PI PiPµC¶C-PsPr C¶C¶P°C¶C,C- PI PrPsCfP»C-PrP¶PµPSPSC- C¶C-P»CHPsPIPëPµ PiC¶C...P»PëPSPSPëPµ PsC¶PµC¶PµPrPsPe P»PsPeP°P»C-P·C¶PIP°PIC¶C¶ PSpµ PI P»PµPiPµPSC¶C... C- PSpµ PI PjB¶[™] C¶PePëC... C,PeP°PSPëPSP°C..., C...C-C¶C¶C¶PiC-C¶PSPµ PIC,C¶C¶C¶P°PSPSC¶ PiC-Pr C¶P°C¶ PrPsCfP»C-PrP¶PµPSPSC¶ PSpµ PiC¶PsPIPsPrPëP»PëC¶C¶. P—P°PiP°P»PsPj PsC,C¶PëPjP°PSC- C¶PµP·CfP»CHC,P°C,Pë PµC,,PµPeC,PëPIPsC¶C,C- PI PiC-PrP»C-C,PeC-PI C-P· PrPsP·C¶C-P»PsC¶ PeC-C¶C,PePsPIPsC¶ C¶PëC¶C,PµPjPsC¶ C- PrPsC¶P¶P»PëC... P±C¶P»Pë C¶C...PsP¶PëPjPë.

Pj PrPsCfP»C-PrP¶PµPSPSC¶ 7 P±C¶P»Ps P·P°P»C¶C¶PµPSPs 85 PrPsC¶P¶CfP»PëC... PiP°C¶C-C"psc,C-PI, C¶PeC- C¶P°PSC-CëPµ P±C¶P°P»Pë C¶C¶P°C¶C,CH C¶ PrPsCfP»C-PrP¶PµPSPSC- 6 C- P·P°PIPµC¶C¶PëP»Pë PµPsPiPs. PµP°C¶C-C"psc,P°Pj PrPsP·PIPsP»C¶P»PsC¶C¶ PsC,C¶PëPjC¶P¶P°P,Pe PrPµPSPsC¶C¶PjP°P± PrP»C¶ P»C-PeC¶PIP°PSPSC¶ PiC-PiP°PSC,PsPeP»C-C,PëPSPSPsC— PiC¶C...P»PëPSPë PeC-C¶C,PePë, C¶C¶C- PiP°C¶C-C"psc,Pë PiPµC¶PµP±C¶P¶P°P»Pë PiC-Pr C¶PiPsC¶C,PµC¶PµP¶PµPSPSC¶Pj PiC¶PsC,C¶PiPsPj 5 C¶PsPeC-PI. PhC¶PSPsPIPsC¶ PjPµC,PsC¶ P±C¶P»Ps PsC¶C-PSPëC,Pë PrPsPIPsC¶C,C¶PsPePsPIPëPµ PiC¶PsC,,C-P»CH P±PµP·PiPµPePë P·P°C¶C,PsC¶C¶P¶P°PSPSC¶ PrPµPSPsC¶C¶PjP°P±C¶ PrP»C¶ PiP°C¶C-C"psc,C-PI C-P· PiC-PiP°PSC,PsPeP»C-C,PëPSPSPsC¶ PiC¶C...P»PëPSPsC¶ PeC-C¶C,PePë.

P'PiP»PëPI PSP° P±C-P»CH

Pj P·P°PeP»C¶C¶PSPsPjC¶ P°PSP°P»C-P·C- PrP°PSPëC... PI PsP±B¶[™] C"PrPSP°PSC-Pµ PiC¶C¶PiC- P· 1-C— C,P° 2-C— PePsPiPsC¶C, PiPsPIC-PrPsPjP»C¶P»PsC¶C¶ PiC¶Ps PeP»C-PSC-C¶PSPs C¶C¶C,C,C"PIPµ P·PjPµPSC¶PµPSPSC¶ C¶PëP»CHPsPiPs P±PsP»C¶ (C,PsP±C,Ps P·PSPëP¶PµPSPSC¶ PSP° ≥ 2 P±P°P»Pë PIC-Pr PIPëC...C-PrPSPsPiPs C¶C-PIPSC¶) C¶ 30,8 % PiP°C¶C-C"psc,C-PI PiC¶C¶PiPë C¶PëP·PëPeC¶ (C,PsP±C,Ps C¶ C,PëC..., C...C,Ps PjP°PI PSP°PµPiC-C¶C¶PëPµ P±P°P» P·P° CëPeP°P»PsC¶ C¶PëP»CHPsPiPs P±PsP»C¶ ≥ 2 PIC-Pr PIPëC...C-PrPSPsPiPs C¶C-PIPSC¶) PiC¶PsC,C¶PiPsPj 1 C,PëP¶PSC¶ P»C-PeC¶PIP°PSPSC¶ C,P° ≥ 50 % PSP° 5 C,PëP¶PSC-. P¶Pµ PiPsC¶P»P°P±P»PµPSPSC¶ P±PsP»C¶ PiC-PrC,C¶PëPjC¶P¶P°P»PsC¶C¶ PI C¶C¶C-C... PSP°C¶C,C¶PiPSPëC... PsC¶C-PSPeP°C....

P"C-C,Pë

P,,PIC¶PsPiPµPµC¶C¶CHPePµ P°PiPµPSC,C¶C,PIPs P»C-PeP°C¶C¶CHPePëC... P·P°C¶PsP±C-PI C,PëPjC¶P°C¶P¶P°PSPs C¶C,C¶PëPjP°P»PsC¶C¶ PIC-Pr P·PsP±PsPiB¶[™] C¶P·P°PSPSC¶ PiPµC¶PµPrP°PIP°C,Pë C¶PµP·CfP»CHC,P°C,Pë PrPsCfP»C-PrP¶PµPSPSC¶ P·P°C¶C,PsC¶C¶P¶P°PSPSC¶ PiC¶PµPiP°C¶P°C,C¶ P¶PeC¶PrP¶PµPIP°^{B®} C¶ PIC¶C-C...

PiC-PrPiC7CfPiP°C... PrC-C,PuPNe PrP»Cij PiPsPiPuC7PuPrP¶PuPSPSCij PeC-C7C,PePsPIPëC...
PiPsPrC-PMe Cr PiP°C+C-C" PSC,C-PI P· PjPuC,P°C7C,P°P·P°PjPë PI PeC-C7C,PePë C,P° Cr
PiC-PrPiC7CfPiP°C... PrC-C,PuPNe PIC-PePsPj PrPs 12 C7PsPeC-PI PiC7Pë P»C-PeCfPIP°PSPSC-
PiC-PiP°PSC,PsPeP»C-C,PëPSPSPëC... PiC7C...P»PëPS PeC-C7C,PsPe (PrPëPI. C7PsP·PrC-P»
B«PÿPiPsC7C-P± P·P°C7C,PsC7CfPIP°PSPSCij C,P° PrPsP·PëB» PrP»Cij PsC,C7PëPjP°PSPSCij
C-PSC,,PsC7PjP°C+C-C— C%oPsPrPs P·P°C7C,PsC7CfPIP°PSPSCij PrC-C,CijPj).

P' PrPsC7P»C-PrP¶PuPSPSC- 6 PiC7PuPiP°C7P°C, P+PeC7PrP¶PuPIP°B® PsC+C-PSC7PIP°PIC7Cij
PI PiC-PrPiC7CfPiC- P· 28 PiC-PrP»C-C,PeC-PI (PIC-PePsPj PIC-Pr 13 PrPs 17 C7PsPeC-PI) P·
PiC-PiP°PSC,PsPeP»C-C,PëPSPSPëPjPë PiC7C...P»PëPSP°PjPë PeC-C7C,PsPe P·
PrPsP·C7C-P»PsC7 PeC-C7C,PePsPIPSc7 C7PëC7C,PuPjPsC7. P—C7C-P»C-C7C,C7
PIPëP·PSP°C±P°P»P°C7Cij P·P° P·P°PIPµC7C€PuPSPëPj PrPsP·C7C-PIP°PSPSCijPj
C%oPsPSP°PNëPjPuPSC€Pu 1 C,C7CfP±C±P°C7C,PsC— PeC-C7C,PePë (PSP°PiC7PëPeP»P°Pr,
P·P°PeC7PëC,P° PiP»P°C7C,PëPSPeP° PuPiC-C,,C-P·P°C7PSPsPiPs C7PsC7C,Cr
PiP»PuC±PsIPsC— PeC-C7C,PePë) C,P° PiPsPeP°P·PSPëPePsPj PjP°C7Pë C,C-P»P° ≥ 45 PePi. P'
PsPrPSPsPiPs PiC-PrP»C-C,PeP° P· PSPµPsPiPuC7P°P±PuP»C7PSPëPj
P·P°C...PIPSc7C7PIP°PSPSCijPj (N = 14) PIC-PrP±CfPIC7Cij C7PuC+PëPrPëPI PiC-Pr C±P°C7
PiPsC±P°C,PePsIPsPiPs P»C-PeCfPIP°PSPSCij. P"Ps PjC-C7CijC+Cij 6 C...C-C7CfC7PiC-C±PSPµ
P»C-PeCfPIP°PSPSCij PSPµ PiC7PsC...PsPrPëP»Pë 13 C-P· 14 PiP°C+C-C" PSC,C-PI P·
PsPiPuC7P°P±PuP»C7PSPëPj P·P°C...PIPsC7C7PIP°PSPSCijPj, Cr CijPePëC...
P·P°PiP»P°PSPsPIP°PSPµ C...C-C7CfC7PiC-C±PSPµ PIC,C7CfC±P°PSPSCij
PiPsPiB7™ CijP·CfPIP°P»PsC7Cij P· C,CijP¶PePëPjPë PSP°C7P»C-PrPeP°PjPë.

PαP°C7PjP°PePsPeC-PSPµC,PëPeP°.

P7P±C7PsC7P±C+C-Cij

PuC-C7P»Cij PiC-PrC€PeC-C7PSPsPiPs PIPiPuPrPuPSPSCij P±C-PsPrPsC7C,CfPiPSC-C7C,C7
C7PeP»P°PrP°P»P° 62 %.

P'C-PsC,C7P°PSC7C,,PsC7PjP°C+C-Cij

P"PuPSPsC7CfPjP°P± C7PeP»P°PrP°C"C,C7C7Cij PIPëPeP»C7C±PSPs P·
P°PjC-PSPsPePëC7P»PsC, C,P° PICfPiP»PuPIPPrC-PI, CijPe C- PiC7PëC7PsPrPSPëPNë
C-PjCfPSPsPiP»PsP±CfP»C-PS. PÿPsPjCf PjP°P»PsPNëPjPsPIC-C7PSPs, C%oPs PIC-PS P±CfPrPu
PIPëPiPsPrPëC,PëC7Cij C€P»CijC...PsPj PiPuC±C-PSPePsIPsPiPs PjPuC,P°P±PsP»C-P·PjCf.
P'PIP°P¶P°C"C,C7C7Cij, C%oPs PNëPsPiPs PjPuC,P°P±PsP»C-P·Pj C,P° PIPëPiPuPrPuPSPSCij
PIC-PrP±CfPIP°C7C,C7C7Cij C,PëPjPë P¶ C€P»CijC...P°PjPë, C%oPs C- PeP»C-C7PuPSC7
C-PjCfPSPsPiP»PsP±CfP»C-PSCf, PiC7PëP·PIPsPrCijC±Pë PrPs C7PsP·PiP°PrCf
PSPµPIPµP»PëPePëC... P±C-P»PeC-PI PrPs PsPeC7PuPjPëC... P°PjC-PSPsPePëC7P»PsC,.

P'PëPiPuPrPuPSPSCij

Pj PiP°C+C-C" PSC,C-PI C-P· PiPsC€PëC7PuPSPëPj C7P°PePsPj PiC7Pë
P·P°C7C,PsC7CfPIP°PSPSC- P±P°PiP°C,PsPeC7P°C,PSPëC... PrPsP· PiPs 120 PjPi PePsP¶PSC-
4 C,PëP¶PSC- C7PiPsC7C,PuC7C-PIP°P»PsC7Cij P·P±C-P»C7C€PuPSPSCij
C7PëC7PsPIP°C,PePsIPsC— PePsPSC+PuPSC,C7P°C+C-C— PrPuPSPsC7CfPjP°P±Cf PjP°PNëP¶Pu
PI 2 C7P°P·Pë, P° C7C-PIPSPsPIP°P¶PSPëPNë C7C,P°PS PrPsC7CijPiP°PIC7Cij C±PuC7PuP·
6 PjC-C7CijC+C-PI, C%oPs PIC-PrPiPsPIC-PrP°C" PSPµP·P°P»PuP¶PSC-PNë PIC-Pr C±P°C7Cf
C,,P°C7PjP°PePsPeC-PSPµC,PëC+C-. P' PsC7C-P± C-P· PjC-C" P»PsPjPSPSc7
C...PIPsC7PsP±PsC7, CijPeC- PsC,C7PëPjCfPIP°P»Pë 120 PjPi PePsP¶PSC- 4 C,PëP¶PSC-,
PjPuPrC-P°PSPë PjC-PSC-PjP°P»C7PSPëC... P·P°P»PëC€PePsPIPëC...

PePsPSC†PμPSC, CḡP°C†C-PNₑ PIC-PrCḡC-P·PSCḡP»PëCḡCḡ PjPμPSC€ PSC-P¶ PSP° 8 % PSP° 6 C,P° 12 PjC-CḡCḡC†CḡC.... Pj PīP°C†C-C”PSC,C-PI P· PiC-PiP°PSC,PsPeP»C-C,PëPSPSPëPjPë PiCḡC...P»PëPSP°PjPë PeC-CḡC,PsPe, CḡPeC- PsC,CḡPëPjCḡPIP°P»Pë 120 PjPi PePsP¶PSC- 4 C,PëP¶PSC- P· PSP°PIP°PSC,P°P¶CḡPIP°P»CḡPSPsCḡ PrPsP·PsCḡ PSP° 8 C,P° 15 PrPμPSCḡ, CḡC-PIPSPsPIP°P¶PSC- CḡC-PIPSC- PrPsCḡCḡPiP°P»PëCḡCḡ PiCḡPsC,CḡPiPsPj PīPμCḡC€PsPiPs PjC-CḡCḡC†CḡC P»C-PeCḡPIP°PSPSCḡ. PkP° 9 C,P° 49 C,PëP¶PSCḡC... PjPμPrC-P°PSPë PjC-PSC-PjP°P»CḡPSPëC... P·P°P»PëC€PePsPIPëC... PePsPSC†PμPSC, CḡP°C†C-PNₑ PIC-PrCḡC-P·PSCḡP»PëCḡCḡ PjPμPSC€ PSC-P¶ PSP° 9 %. Pj PīP°C†C-C”PSC,C-PI, CḡPeC- PiCḡPëPīPëPSPëP»Pë PsC,CḡPëPjCḡPIP°P,C,Pë 120 PjPi PePsP¶PSC- 4 C,PëP¶PSC-, CḡPμCḡPμPrPSC-PNₑ PīPμCḡC-PsPr PSP°PiC-PIPIPëPIPμPrPμPSPSCḡ CḡC,P°PSPsPIPëPI 28 PrPSC-PI (PrC-P°PīP°P·PsPS: 14ḡḡ“55 PrPSC-PI).

PḡPSP°P»C-P· PiPsPiCḡP»CḡC†C-PNₑPSPsC— C,,P°CḡPjP°PePsPeC-PSPμC,PëPePë PSPμ PIPëP°P·P°PI PSP° PeP»C-PSC-CḡPSPs CḡCḡC,C,C”PIC- P·PjC-PSPë CḡPëCḡC,PμPjPSPsPiPs PIPiP»PëPICḡ PrPμPSPsCḡCḡPjP°P±Cḡ PI CḡC-PIPSPsPIP°P¶PSPsPjCḡ CḡC,P°PSC- P·P°P»PμP¶PSPs PIC-Pr PIC-PeCḡ (18ḡḡ“87 CḡPsPeC-PI), CḡP°CḡPë/PμC,PSC-CḡPSPsC— PiCḡCḡPiPë (PrPsCḡP»C-PrP¶PμPSC- PīP°C†C-C”PSC,Pë P· C,PμPjPSPëPj PePsP»CḡPsCḡPsPj C€PeC-CḡPë, PIPëC...C-PrC†C- P· P>P°C,PëPSCḡCḡPePsC— PḡPjPμCḡPëPePë, PīP°C†C-C”PSC,Pë P°P·C-PNₑCḡCḡPePsPiPs PiPsC...PsPrP¶PμPSPSCḡ C,P° PiCḡPμPrCḡC,P°PIPSPëPePë C”PICḡPsPiPμPsC—PrPSPsC— CḡP°CḡPë), CḡC,P°C,C- PīP°C†C-C”PSC,P° P°P±Ps C,PëPiC-PI CḡPsP»C-PrPSPëC... PiCḡC...P»PëPS CḡPë PSP°CḡPIPSPsCḡC,C- Cḡ PīP°C†C-C”PSC,P° PjC-C”P»PsPjPSPsC— C...PIPSCḡPsP±Pë. P—P±C-P»CḡC€PμPSPSCḡ PjP°CḡPë C,C-P»P° PīPsPIḡḡ™ CḡP·CḡPIP°P»PsCḡCḡ P·C- P·PjPμPSC€PμPSPSCḡPj CḡPëCḡC,PμPjPSPsPiPs PIPiP»PëPICḡ C- PSP°PIPiP°PePë. P—PjC-PSPë PSPμ PIPiP°P¶P°P»PëCḡCḡ PeP»C-PSC-CḡPSPs CḡCḡC,C,C”PIPëPjPë, PsCḡPeC-P»CḡPePë C,,P°CḡPjP°PePsPrPëPSP°PjC-CḡPSC- PμC,,PμPeC,Pë PSP° PsCḡPSPsPIC- PjP°CḡPePμCḡC-PI PeC-CḡC,PePsPIPsPiPs CḡPμPjPsPrPμP»CḡPIP°PSPSCḡ P±CḡP»Pë PIC-PrPiPsPIC-PrPSPëPjPë PI C€PëCḡPsPePsPjCḡ PrC-P°PīP°P·PsPSC- PīPsPeP°P·PSPëPeP° PjP°CḡPë C,C-P»P°.

P>C-PSC-PNₑPSC-CḡC,Cḡ/PSPμP»C-PSC-PNₑPSC-CḡC,Cḡ

P”PμPSPsCḡCḡPjP°P± PIC-PrPsP±CḡP°P¶P°PI PSPμP»C-PSC-PNₑPSCḡ C,,P°CḡPjP°PePsPeC-PSPμC,PëPeCḡ PI C€PëCḡPsPePsPjCḡ PrC-P°PīP°P·PsPSC- PrPsP·, P°P»Pμ PjP°PNₑP¶Pμ PrPsP·PsPiCḡPsPiPsCḡC†C-PNₑPSPμ P·P±C-P»CḡC€PμPSPSCḡ PIPiP»PëPICḡ PrP»Cḡ PrPsP· 60 PjPi (P°P±Ps 1 PjPi/PePi) C,P° PIPëC%Pμ. PkPμP»C-PSC-PNₑPSC-CḡC,Cḡ, PSP°PNₑC-PjPsPIC-CḡPSC-C€Pμ, PiPsPIḡḡ™ CḡP·P°PSP° P· PIP°P¶P»PëPIPëPj C€P»CḡC...PsPj PIPëPIPμPrPμPSPSCḡ, PsPiPsCḡPμCḡPμPrPePsPIP°PSPëPj PjC-C€PμPSPSCḡ, CḡPeP° PSP°CḡPëCḡCḡC,CḡCḡCḡ, PiCḡPë PSPëP·CḡPePëC... PePsPSC†PμPSC, CḡP°C†C-CḡC....

PkPëCḡPePsPIP° PSPμPrPsCḡC,P°C,PSC-CḡC,Cḡ

P’ PrPsCḡP»C-PrP¶PμPSPSCḡC... PrPμPSPsCḡCḡPjP°P±Cḡ Cḡ PīP°C†C-C”PSC,C-PI (60 PjPi, n = 55 C,P° 120 PjPi, n = 32) P±PμP· PiC-P·PSCḡPsC— CḡC,P°PrC-C— CḡP°PeCḡ, P°P»Pμ P· CḡC-P·PSPëPj CḡC,CḡPiPμPSPμPj C,,CḡPSPeC†C-C— PSPëCḡPsPe, PIPeP»CḡCḡP°CḡCḡPë PīP°C†C-C”PSC,C-PI PSP° PrC-P°P»C-P·C-, CḡC,CḡPiC-PSCḡ PSPëCḡPePsPIPsC— PSPμPrPsCḡC,P°C,PSPsCḡC,C- PSPμ PIPiP»PëPIP°PI PSP° C,,P°CḡPjP°PePsPeC-PSPμC,PëPeCḡ PrPμPSPsCḡCḡPjP°P±Cḡ; C,P°PePëPj CḡPëPSPsPj, PSPμPjP°C” PSPμPsP±C...C-PrPSPsCḡC,C- PI PePsCḡPμPeC†C-C— PrPsP·Pë PiCḡPë PSPëCḡPePsPIC-PNₑ PSPμPrPsCḡC,P°C,PSPsCḡC,C-. PμCḡPë P»C-PeCḡPIP°PSPSC- PiCḡPμPīP°CḡP°C,PsPj P†PeCḡPrP¶PμPIP°^B PjPsPSC-C,PsCḡPëPSPi PSPëCḡPePsPIPsC— C,,CḡPSPeC†C-C— PSPμ PiPsC,CḡC-P±PμPS.

PμPμCḡC-PSPePsPIP° PSPμPrPsCḡC,P°C,PSC-CḡC,Cḡ

PkPm PiC7PsPIPsPrPpP»PsCfC7 C7PipmC7C-P°P»CHbPSPeC... PrPsC7P»C-PrP¶PmPSCb P·P°
C7C7P°C7C,Ch Pip°C7C-C"psc,c-pi P· PipmC7C-PSPePsPIPsCh PSPmPrPsC7C,P°c,psc-C7C,Ch.
P—P°Pip°P»Pspj, PjPsPSPsPeP»PSPSP°P»CHbPSC- P°PSC,PeC,C-P»P° PSPm
PIPpIPsPrC7C,ChC7C7 C7P»C7C...Pspj PipmC7C-PSPePsPIPsPis PjPmC,P°P±Psp»C-P·PjC7.
PkPm PsC7C-PeC7C"7,ChC7C7, C%00Ps PipmC7C-PSPePsPIP° PSPmPrPsC7C,P°c,psc-C7C,Ch
P±C7PrPm PIPiP»PpIPiP°c,Pp PSP° C,,P°C7PjP°PePsPeC-PSPmC,PpPeC7 PrPmPSPsC7C7PjP°P±C7.

PmP°C7C-C"psc,Pp P»C-C,pschbPspis PIC-PeC7

PbC-P¶ Pip°C7C-C"psc,P°PjPp P»C-C,pschbPspis PIC-PeC7 C,P° PjPsP»PSPpPpPp
Pip°C7C-C"psc,P°PjPp P·P°Pip°P»Pspj PSPm C7PipmC7C,PmC7C-Pip°P»Psc7C7
PIC-PrPjC-PSPSPsC7C,PmPn% C%00PsPrPs P±Pm·PipmPePp P°P±Ps PmC,,PmPeC,PpIPSPsC7C,C-
PbPsPSC,C7PsP»ChbPSPiP°psc- PeP»C-PSC-C7psc- PrPsC7P»C-PrP¶PmPSPSC7
PipC7PmPip°C7P°c,C7 P7PeC7PrP¶PmPIP°b® P·P° C7C7P°C7C,Ch Pip°C7C-C"psc,c-pi PIC-PePsPj
PIC-Pr 65 C7PsPeC-pi P· Pic-P·psc-PjPp C7C,P°PrC-C7PjPp P·P»Psc7PpPeC-C7PSPeC...
Pic7C...P»PpPS P· C7C7P°P¶PmPSPSC7Pj PeC-C7C,PsPe PIPpC7PIPp»Pp P°PSP°P»Pspic-C7psc7
PmC,,PmPeC,PpIPSC-C7C,Ch C,P° P±Pm·PipmPeC7 C7Pe C7 C7C,P°C7C7PpC... C,P°Pe C- C7
PjPsP»PSPpC7PpC... Pip°C7C-C"psc,c-pi. P"»C7 Pip°C7C-C"psc,c-pi P»C-C,pschbPspis
PIC-PeC7 PSPmPjP°c" PSPmPsp±C...C-PrPSPsC7C,C- pi PePsC7PmPeC7C-C— PrPsP·Pp.

P"7C-C,Pp

Pj Pic-PrP»C-C,PeC-pi C-P· PrPsP·C7C-P»Psc7 PeC-C7C,PePsPIPsCh C7PpC7C,PmPjPsCh
(PIC-PePsPj PIC-Pr 12 PrPs 17 C7PsPeC-pi) C-P· Pic-Pip°psc,PsPeP»C-C,PpPSPSPsCh
Pic7C...P»PpPSPsCh PeC-C7C,PsPe, C7PeC- PsC,C7PpPjC7PIP°P»Pp 120 PjPi PePsP¶PSC-
4 C,PpP¶PSC- P· PSP°PIP°psc,P°P¶C7PIP°P»ChbPSPsCh PrPsP·PsCh PSP° 8-Pn% C,P° 15-Pn%
PrPSC-, C,,P°C7PjP°PePsPeC-PSPmC,PpPeP° PrPmPSPsC7C7PjP°P±C7 PSPm
PIC-PrC7C-P·psc7P»P°C7C7 PIC-Pr P°PSP°P»Pspic-C7PSPeC... PipmPeP°P·PSPpPeC-pi,
PsC,C7PpPjP°PSPeC... C7 PrPsC7PsC7P»PpC... Pip°C7C-C"psc,c-pi C-P·
Pic-Pip°psc,PsPeP»C-C,PpPSPSPsCh Pic7C...P»PpPSPsCh PeC-C7C,PsPe.

P"°psc- PrPsPeP»C-PSC-C7PSPeC... PrPsC7P»C-PrP¶PmPSCb P· P±Pm·PipmPePp.

PkC7PeC-P»ChbPePp P±C-Psp»Pspic-C7PSP° P°PeC,PpIPSC-C7C,Ch PrPmPSPsC7C7PjP°P±C7 C7
PipC7PpPjP°c,C-pi C7PipmC7PpC,,C-C7PSP°, PrP»C7 PsC7C-PSPePp
C,,P°C7PjP°PePsPrPpPSP°PjC-C7PSPeC... PIP»P°C7C,PpIPsC7C,PmPn% PrPmPSPsC7C7PjP°P±C7
PSP° PjPsPrPmP»C7C... Pic7PpP·C7PSC-pi PIPpPePsC7PpC7C,PsPIC7PIP°P»PpC7Ch
PipmPSPSPs-PjPsPrPpC,,C-PePsPIP°psc- PjPpC7C- (C,PmC...PSPSP»Pspic-C7 knockout) P°P±Ps
C-PSC7C- P±C-Psp»Pspic-C7PSC- C-PSPic-P±C-C,PsC7Pp C7P»C7C...C7 RANK/RANKL,
C,P°PeC- C7Pe OPG-Fc C,P° RANK-Fc.

Pj PjPsPrPmP»C7C... PjPpC7PmPn% C-P· PeC-C7C,PePsPIPpPp PjPmC,P°C7C,P°P·P°PjPp
PmC7C,C7PsPipmPS C7PmC7PmPic,PsC7PipmP·PpC,PpIPSPsPis C,P° PSPmPip°c,PpIPSPsPis
C7P°PeC7 PjPsP»Psc7PSPs— P·P°P»Psp·Pp, C7P°PeC7 PipmC7PmPrPjC-C...C7C7PsPIPsC—
P·P°P»Psp·Pp C,P° PSPmPrC7C-P±PSPsPeP»C-C,PpPSPSPsPis C7P°PeC7 P»PmPipmPSCb
P»ChbPrPpPSPp OPG-Fc P·PjPmPSC7C7PIP°pi PsC7C,PmPsP»C-C,PpC7PSC-,
PsC7C,PmPsP±P»P°C7C,PpC7PSC- C,P°
PsC7C,PmPsP»C-C,PpC7PSC-/PsC7C,PmPsP±P»P°C7C,PpC7PSC- C7C7Pn%PSC7PIP°PSPSC7,
P·P°c,C7PpPjC7PIP°pi C,,PsC7PjC7PIP°PSPSC7 de novo PeC-C7C,PePsPIPpC...
PjPmC,P°C7C,P°P·C-pi C,P° C7C,C7PpPjC7PIP°pi C7C-C7C, Pic7C...P»PpPS pi PeC-C7C,PeP°c....
PpPeC%00Ps OPG-Fc PipmC"PrPSC7PIP°PIC7C7 P· PipmC7PjPsPSP°P»ChbPSPsCh
C,PmC7P°Pic-C"Ch (C,P°PjPsPeC7PpC,,PmPS) P°P±Ps C...C-PjC-PsC,PmC7P°Pic-C"Ch

(PrPsC†PμC,P°PeC†PμP»), PIC-PrPjC-C†P°P»PsC†CΠ PrPsPrP°C,PePsPIPμ
PiC†PëPiPSC-C†PμPSPSCΠ C†PμC†C,Cr PeC-C†C,PePsPIPëC... PsC†PμC†PμPrPeC-PI C†P°PeC†
PjPsP»PsC†PSPSc— P·P°P»PsP·Pë, PiPμC†PμPrPjC-C...C†C†PμPIPSc— P·P°P»PsP·Pë P°P±Ps
C†P°PeC† P»PμPiPμPSCΠ PIC-PrPiPsPIC-PrPSPs. Pj PjPsPrPμP»C- PjPëC€C- P·
C-PSP†C†PePsPIP°PSPSc† PiC†C...P»PëPSPSc† PjPsP»PsC†PSPSc— P·P°P»PsP·Pë RANK-Fc
P·PSPëP¶C†PIP°PI PsPiPsC†PμC†PμPrPePsPIP°PSC† PiPsC†PjPsPSPsPj
PiC†PμP»C-C,,PμC†P°C†C-C† PμPiC-C,PμP»C-C† PjPsP»PsC†PSPSc— P·P°P»PsP·Pë C,P°
P·P°C,C†PëPjC†PIP°PI C,,PsC†PjC†PIP°PSPSCΠ PiC†C...P»PëPSPë.

PŸC,P°PSP†P°C†C,PSC- C,PμC†C,Pë PrP»CΠ PIPëP·PSP°C†PμPSPSCΠ PiPsC,PμPSC†C-P°P»C†
PiPμPSPSc,PsPeC†PëC†PSPSc†C,C- PrPμPSPSc†C†PjP°P±C† PSPμ PIPëPePsPSC†PIP°P»PëC†C†C†,
PsC†PeC-P»C†PëPë C,P°PeC- C,PμC†C,Pë PSPμ C” C†PμP»PμPIP°PSC,PSPëPjPë PrP»CΠ
C†C-C”C— PjPsP»PμPeC†P»Pë. PμC†PμC,Pμ PjP°P»PsPμPjPsPIC-C†PSPs, C%oPs
PrPμPSPSc†C†PjP°P± PjP°C” P±C†PrC†C-CΠPePëPμ PiPsC,PμPSC†C-P°P»
PiPμPSPSc,PsPeC†PëC†PSPSc†C,C-.

PμP°PSC†PμC†PμPiPμPSPSPëPμ PiPsC,PμPSC†C-P°P» PrPμPSPSc†C†PjP°P±C† PSPμ
PsC†C-PSC†PIP°PIC†CΠ PI PrPsPIPiPsC,C†PëPIP°P»PëC... PrPsC†P»C-PrP¶PμPSPSCΠC... PSP°
C,PIP°C†PëPSP°C....

P’ PrPsC†P»C-PrP¶PμPSPSCΠC... C,PsPeC†PëC†PSPSc†C,C- PsPrPSPsPeC†P°C,PSPSc— C,P°
P±P°PiP°C,PsPeC†P°C,PSPëC... PrPsP· PSP° CΠPIP°PSC†C†PëPëC... PjP°PeP°PeP°C... PrPsP·Pë
PrPμPSPSc†C†PjP°P±C†, CΠPeC- PiC†PëP·PIPsPrPëP»Pë PrPs C†PëC†C,PμPjPSPSc—
PIC-PrPiPsPIC-PrC- C- P±C†P»Pë PIPëC%oPëPjPë PI 2,7B†“15 C†P°P·C-PI, PSC-P¶
C†PμPePsPjPμPSP†PμPIP°PSP° PrPsP·P° PrP»CΠ P»C†PrPëPSPë, PSPμ PjP°P»Pë PIPiP»PëPIC†
PSP° C,,C-P·C-PsP»PsPiC-C† C†PμC†PμPIPSc-C†C†PrPëPSPSPSc— C†PëC†C,PμPjPë,
C†PμPiC†PμPrC†PeC,PëPIPSC† C,,C†PSPeC†C-C† C†P°PjC†C-PI P°P±Ps C†P°PjPsPe P°P±Ps PSP°
PIPëPSPëPePSPμPSPSCΠ C†PiPμC†PëC,,C-C†PSPSc— C,PsPeC†PëC†PSPSc†C,C- PrP»CΠ
PsC†PiP°PSC-PI-PjC-C€PμPSPμPμ.

P’ PrPsC†P»C-PrP¶PμPSPSC- PSP° CΠPIP°PSC†C†PëPëC... PjP°PeP°PeP°C..., CΠPeC-
PsC,C†PëPjC†PIP°P»Pë PrPμPSPSc†C†PjP°P± PiC†PμC,CΠPiPsPj PiPμC†C-PsPrC†,
PμPePIC-PIP°P»PμPSC,PSPsPiPs PiPμC†C€PsPjC† C,C†PëPjPμC†C,C†C† PIP°PiC-C,PSPSc†C,C-
PrPsP·Pë PrPμPSPSc†C†PjP°P±C†, CΠPeC- PiC†PëP·PIPsPrPëP»Pë PrPs C†PëC†C,PμPjPSPSc—
PIC-PrPiPsPIC-PrC- C- P±C†P»Pë PIPëC%oPëPjPë PI 9 C†P°P·C-PI, PSC-P¶
C†PμPePsPjPμPSP†PμPIP°PSP° PrPsP·P° PrP»CΠ P»C†PrPëPSPë, PSPμ C†PiC†PëC†PëPSCΠP»Pë
C,PsPeC†PëC†PSPSc— PrC-C— PSP° PjP°C,C-C† P°P±Ps PiP»C-Pr PiC†PμC,CΠPiPsPj
PiPμC†C-PsPrC†, PμPePIC-PIP°P»PμPSC,PSPsPiPs PiPμC†C€PsPjC† C,C†PëPjPμC†C,C†C†
PIP°PiC-C,PSPSc†C,C-, C...PsC†P° P»C-PjC,,P°C,PëC†PSC- PIC†P·P»Pë PiP»PsPrP° PSPμ
PrPsC†P»C-PrP¶C†PIP°P»PëC†CΠ.

P’ C-PSC€PsPjC† PrPsC†P»C-PrP¶PμPSPSC- PSP° CΠPIP°PSC†C†PëPëC... PjP°PeP°PeP°C...,
CΠPeC- PsC,C†PëPjC†PIP°P»Pë PrPμPSPSc†C†PjP°P± PiC†PμC,CΠPiPsPj PIP°PiC-C,PSPSc†C,C-
P· C†PëC†C,PμPjPSPëPj PIPiP»PëPIPsPj, C† 12 C†P°P·C-PI PIPëC%oPëPj, PSC-P¶ PrPsP·P° PrP»CΠ
P»C†PrPëPSPë, PIC-PrPjC-C†P°P»Pë P·P±C-P»C†C€PμPSPSCΠ
PjPμC†C,PIPsPSP°C†PμPrP¶PμPSCΠ C,P° PiPsC†C,PSP°C,P°P»C†PSPSc—
C†PjPμC†C,PSPSc†C,C-; PiP°C,PsP»PsPiC-C†PSPëPμ C†C-C†C, PeC-C†C,PsPe, CΠPePëPμ
PiC†PëP·PIPsPrPëPI PrPs P·PjPμPSC€PμPSPSCΠ PjC-C†PSPSc†C,C- PeC-C†C,PsPe,
P·PSPëP¶PμPSPëPμ PiPμPjPsPiPsPμP· C,P° PSPμPiC†P°PIPëP»C†PSPëPμ PiC†PëPeC†C†;
PIC-PrC†C†C,PSC-C†C,C† PiPμC†PëC,,PμC†PëC†PSPëC... P»C-PjC,,PsPIC†P·P»C-PI;
C†PiPsPIC-P»C†PSPμPSPSCΠ PSPμPsPSP°C,P°P»C†PSPsPiPs C†PμC†C,C†.
PμP°PeC†PëPjP°P»C†PSP° PrPsP·P°, CΠPeP° PSPμ PiC†PëP·PIPsPrPëP»P° PrPs

PIPëPSPëPePSPµPSPSCİ CÍPİPsCÍC, PµCĤPµP¶CÍPIP°PSPëC... PSPµP±P°P¶P°PSPëC...
PµC,, PµPeC, C-PI PSPµ P±CÍP»P° PICÍC, P°PSPsPIP»PµPSP°. PŞPµCĤPµP· 6 PjC-CÍCİC†C-PI
PİC-CÍP»Cİ PSP°CĤPsPrP¶PµPSPSCİ P·PjC-PSPë, PİPsPIBĤ™ CİP·P°PSC- P· PeC-CÍC, PeP°PjPë,
PİPsPeP°P·P°P»Pë PİPsPIPµCĤPSPµPSPSCİ PrPs PSPsCĤPjPë, PSPµ PIC-PrPjC-C†P°P»PsCÍCİ
PIPİP»PëPICÍ PSP° PİCĤPsCĤC-P·CÍPIP°PSPSCİ P·CÍP±C-PI. PhPrPSP°Pe PIPİP»PëPI PSP°
P»C-PjC,, P°C, PëC†PSC- PICÍP·P»Pë C, P° PİCĤPëPeCÍCÍ P·P°P»PëCëPëPICÍCİ, P° CÍ
PsPrPSC-C”C— C, PIP°CĤPëPSPë CÍPİPsCÍC, PµCĤC-PİP°P»P°CÍCİ PjC-PSC-PjP°P»CĤPSP°
P°P±Ps CÍPµCĤPµPrPSCİ PjC-PSPµCĤP°P»C-P·P°C†C-Cİ C†PëCÍP»PµPSPSPëC... C, PeP°PSPëPS
(P·PIBĤ™ CİP·PsPe P· P»C-PeCÍPIP°PSPSCİPj PSPµ PsC†PµPIPëPrPSPëPµ). PkPµ P±CÍP»Ps
PrPsPeP°P·C-PI CëPePsPrPë PrP»Cİ PjP°C, PµCĤC- PrPs PİPsP»PsPiC-PI; PSPµP±P°P¶P°PSC-
CĤPµP°PeC†C-C— CÍ PjP°C, PµCĤC- PSPµC†P°CÍC, Ps PIPëPSPëPeP°P»Pë PİC-Pr C†P°CÍ
PİPsP»PsPiC-PI. P PsP·PIPëC, PsPe PjPsP»PsC†PSPsC— P·P°P»PsP·Pë PjP°C, PµCĤC- P±CÍPI
PSPsCĤPjP°P»CĤPSPëPj.

P' PrPsPeP»C-PSC-C†PSPëC... PrPsCÍP»C-PrP¶PµPSPSCİC... CİPePsCÍC, C- PeC-CÍC, PsPe PSP°
PjP°PIPİP°C... PİCĤPë C, CĤPëPIP°P»PsPjCÍ P»C-PeCÍPIP°PSPSC- PrPµPSPsCÍCÍPjP°P±PsPj
CÍPİPsPIC-P»CĤPSPµPSPSCİ CĤPµPjPsPrPµP»CĤPIP°PSPSCİ PİPsPIBĤ™ CİP·CÍPIP°P»PsCÍCİ
P· PİPsPeCĤP°C%µPµPSPSCİPj PjC-C†PSPsCÍC, C- PeC-CÍC, PsPe C, P° PSPsCĤPjP°P»CĤPSPëPjPë
PİC-CÍC, PsP»PsPiC-C†PSPëPjPë PİP°CĤP°PjPµC, CĤP°PjPë PeC-CÍC, PsPe.

PJ CÍP°PjC†C-PI PjPëCëPµPµ, CİPeC- CëP»CİC... PsPj PİPµPSPSPsC— PjPsPrPëC,, C-PeP°C†C-C—
PjP°P»Pë PµPeCÍPİCĤPµCÍC-CĤ huRANKL (C, PµC... PSPsP»PsPiC-Cİ knock-in mice) C-
PİC-PrPrP°PIP°P»PëCÍCİ C, CĤP°PSCÍPePsCĤC, PëPeP°P»CĤPSPsPjCÍ PİPµCĤPµP»PsPjCÍ,
PrPµPSPsCÍCÍPjP°P± P·P°C, CĤPëPjCÍPIP°PI PsCĤPİP°PSC-P·P°C†C-CĤ C... CĤCİC%µPİPsC—
C, PeP°PSPëPSPë C, P° CĤPµPjPsPrPµP»CĤPIP°PSPSCİ PeC-CÍC, PePsPIPpsPİPs PjPsP·PsP»Cİ CÍ
PİPsCĤC-PIPSCİPSPSC- P· PePsPSC, CĤPsP»PµPj, P°P»Pµ P±C-PsC... C-PjC-C†PSP°
PjC-C†PSC-CÍC, CĤ PSPµ P·P°P·PSP°PIP°P»P° PSPµP±P°P¶P°PSPsPİPs PIPİP»PëPICÍ.

PJ PrPsPeP»C-PSC-C†PSPëC... PrPsCÍP»C-PrP¶PµPSPSCİC... PjPëCëC- C-P·
P·P°P±P»PsPePsPIP°PSPëPj PİPµPSPsPj RANK P°P±Ps RANKL PSPµ PjP°P»Pë P»P°PeC, P°C†C-C—
CÍ P·PIBĤ™ CİP·PeCÍ P· PİCĤPëPİPSC-C†PµPSPSCİPj PrPsP·CĤC-PIP°PSPSCİ
PjPsP»PsC†PSPëC... P·P°P»PsP· (P»PsP±CÍP»Ps-P°P»CĤPIPµPsP»CİCĤPSPëPµ CĤPsP·PIPëC, PsPe
P·P°P»PsP· PİC-Pr C†P°CÍ PIP°PİC-C, PSPsCÍC, C-) C, P° PrPµPjPsPSCÍC, CĤCÍPIP°P»Pë
PİPsCĤCÍCëPµPSPSCİ CÍC, PİPsCĤPµPSPSCİ P»C-PjC,, PsPICÍP·P»C-PI.
PkPsPIPpsPSP°CĤPsPrP¶PµPSC- PjPëCëC- C-P· P·P°P±P»PsPePsPIP°PSPëPj PİPµPSPsPj
RANK/RANKL PrPµPjPsPSCÍC, CĤCÍPIP°P»Pë P·PjPµPSCëPµPSPSCİ PjP°CÍPë C, C-P»P°,
PİPsCÍP»P°P±P»PµPSPSCİ CĤPsCÍC, CÍ PeC-CÍC, PePsPIPpsC— C, PeP°PSPëPSPë,
PİPsCĤCÍCëPµPSPSCİ P·PsPS CĤPsCÍC, CÍ C, P° PIC-PrCÍCÍC, PSC-CÍC, CĤ
PİCĤPsCĤC-P·CÍPIP°PSPSCİ P·CÍP±C-PI. PhCÍP»P°P±P»PµPSPSCİ CĤPsCÍC, CÍ
PeC-CÍC, PePsPIPpsC— C, PeP°PSPëPSPë, PİPsCĤCÍCëPµPSPSCİ P·PsPS CĤPsCÍC, CÍ C, P°
PIC-PrCÍCÍC, PSC-CÍC, CĤ PİCĤPsCĤC-P·CÍPIP°PSPSCİ P·CÍP±C-PI C, P°PePsP¶
PIC-PrPjC-C†P°P»PëCÍCİ Pİ PrPsCÍP»C-PrP¶PµPSPSCİC... PSP°
PSPsPIPpsPSP°CĤPsPrP¶PµPSPëC... C%µCÍCĤP°C..., CİPePëPj PİPİPsPrPëP»Pë
C-PSPİC-P±C-C, PsCĤPë RANKL, C- C†C- P·PjC-PSPë P±CÍP»Pë C†P°CÍC, PePsPIPps
PsP±PsCĤPsC, PSPëPjPë PİC-CÍP»Cİ PIC-PrPjC-PSPë C-PSPİC-P±C-C, PsCĤCÍ RANKL. PJ
PİCĤPëPjP°C, C-PI PİC-PrP»C-C, PePsPIPpsPİPs PIC-PeCÍ, CİPeC- PsC, CĤPëPjCÍPIP°P»Pë
PrPµPSPsCÍCÍPjP°P± Pİ PrPsP·C-, Pİ 2, 7 C, P° 15 CĤP°P·C-PI (PrPsP·P° 10 C, P° 50 PjPİ/PePİ)
PIPëC%µC-Pµ P·P° PeP»C-PSC-C†PSCÍ PrPsP·CÍ, P±CÍP»Pë PİP°C, PsP»PsPiC-C†PSPs
P·PjC-PSPµPSC- P·PsPSPë CĤPsCÍC, CÍ. PÿP°PePëPj C†PëPSPsPj, P»C-PeCÍPIP°PSPSCİ
PrPµPSPsCÍCÍPjP°P±PsPj PjPsP¶Pµ PİPsCĤCÍCëCÍPIP°C, Pë CĤC-CÍC, PeC-CÍC, PePsPIPpsC—
C, PeP°PSPëPSPë CÍ PrC-C, PµPµ P· PIC-PrPeCĤPëC, PëPjPë P·PsPSP°PjPë CĤPsCÍC, CÍ C, P°

PjPsP¶Pµ PíCḡPëPiPSC-C†CíPIP°C, Pë PíCḡPsCḡC-P·CíPIP°PSPSC¶ P·CíP±C-PI.

РъР»С-РSC-С†PSC- С...Р°СḡР°РeC, PµCḡPëCíC, PëPëPë.

PµPsPeP°P·P°PSPSC¶.

PµPsPíPµCḡPµPrP¶PµPSPSC¶ PeC-CíC, PePsPIPëC... PíPsPrC-PNë (PíP°C, PsP»PsPiC-C†PSPëPNë PíPµCḡPµP»PsPj, PsPíCḡPsPjC-PSPµPSPSC¶ PeC-CíC, PsPe, PePsPjPíCḡPµCíC-C¶ CíPíPëPSPSPsPiPs PjPsP·PeCí P°P±Ps C...C-CḡCíCḡPiC-C†PSPµ PIC, CḡCíC†P°PSPSC¶ PSP° PeC-CíC, PeP°C...) Cí PrPsCḡPsCíP»PëC... PíP°C†C-C"°PSC, C-PI C-P· PíC-P·PSCḡPsCḡ CíC, P°PrC-C"°Cḡ P·P»PsC¶PeC-CíPSPëC... PíCíC...P»PëPS, C¶PeC- PICḡP°P¶P°CḡC, Cḡ PeC-CíC, PePë (PrPëPI. PíC-PrCḡPsP·PrC-P» B«PαP°CḡPjP°PePsPrPëPSP°PjC-PeP°B»).

P>C-PeCíPIP°PSPSC¶ PrPsCḡPsCíP»PëC... C, P° PíC-PrP»C-C, PeC-PI P· PrPsP·CḡC-P»PsCḡ PeC-CíC, PePsPIPpsCḡ CíPëCíC, PµPjPsCḡ, C¶PeC- PjP°CḡC, Cḡ PiC-PiP°PSC, PsPeP»C-C, PëPSPSCí PíCíC...P»PëPSCí PeC-CíC, PsPe, C%Ps PSPµ PjPsP¶Pµ P±CíC, Pë PIPëPrP°P»PµPSP° P°P±Ps C¶PeC%Ps C...C-CḡCíCḡPiC-C†PSP° CḡPµP·PµPeC†C-C¶, PSP°PNëC-PjPsPIC-CḡPSC-CëPµ, PíCḡPëP·PIPµPrPµ PrPs C, C¶P¶PePëC... PSP°CíP»C-PrPeC-PI.

PµCḡPsC, PëPíPsPeP°P·P°PSPSC¶.

PµC-PrPIPëC%PµPSP° C†CíC, P»PëPIC-CíC, Cḡ PrPs PrC-CḡC†PsC— CḡPµC†PsPIPëPSPë P°P±Ps PrPs P±CíPrCḡ-C¶PePsC— PrPsPíPsPjC-P¶PSPsC— CḡPµC†PsPIPëPSPë, PIPeP°P·P°PSPëC... Cí CḡPsP·PrC-P»C- B«PŸPeP»P°PrB».

PkPµP»C-PePsPIP°PSP° PiC-PíPsPeP°P»CḡC†C-C"°PjC-C¶ C, C¶P¶PePsPiPs CíC, CíPíPµPSC¶ (PrPëPI. CḡPsP·PrC-P» B«PḡCíPsP±P»PëPIPsCíC, C- P·P°CíC, PsCíCíPIP°PSPSC¶B»).

PjCḡP°P¶PµPSPSC¶ PíC-CíP»C¶ CíC, PsPjP°C, PsP»PsPiC-C†PSPëC... P°P±Ps C...C-CḡCíCḡPiC-C†PSPëC... PIC, CḡCíC†P°PSCḡ PI CḡPsC, PsPIC-PNë PíPsCḡPsP¶PSPëPSC-, C%Ps PSPµ P·P°PiPsCḡCḡC, CḡCíC¶.

P°P·P°C"°PjPsPrC-C¶ P· C-PSCëPëPjPë P»C-PeP°CḡCíCḡPëPëPjPë P·P°CíPsP±P°PjPë C, P° C-PSCëC- PIPëPrPë PIP·P°C"°PjPsPrC-PNë.

P"°PsCíP»C-PrP¶PµPSPSC¶ PIP·P°C"°PjPsPrC-C— PSPµ PíCḡPsPIPsPrPëP»PëCíC¶. P' PeP»C-PSC-C†PSPëC... PrPsCíP»C-PrP¶PµPSPSC¶C... PíCḡPµPíP°CḡP°C, P†PeCíPrP¶PµPIP°B® P·P°CíC, PsCíPsPICíPIP°PICíC¶ PI PePsPjP±C-PSP°C†C-C— P·C- CíC, P°PSPPr°CḡC, PSPsCḡ PíCḡPsC, PëPíCíC...P»PëPSPSPsCḡ C, PµCḡP°PíC-C"°Cḡ C, P° Cí CḡP°P·C- PíPsPíPµCḡPµPrPSCḡPsPiPs P»C-PeCíPIP°PSPSC¶ P±C-C,, PsCíC,, PsPSP°C, P°PjPë. PkPµ P±CíP»Ps PeP»C-PSC-C†PSPs P·PSP°C†CíC%PëC... P·PjC-PS PjC-PSC-PjP°P»CḡPSPsC— CíPëCḡPsPIP°C, PePsPIPpsC— PePsPSC†PµPSC, CḡP°C†C-C— C, P° C,, P°CḡPjP°PePsPrPëPSP°PjC-PePë PrPµPSPsCíCíPjP°P±Cí (N-C, PµP»PsPiPµPiC, PëPr CíPµC†C- P· PíPsPíCḡP°PIPePsCḡ PSP° PeCḡPµP°C, PëPSC-PS, uNTx/Cr) PíCḡPë PsPrPSPsC†P°CíPSPsPjCí P·P°CíC, PsCíCíPIP°PSPSC- C...C-PjC-PsC, PµCḡP°PíC-C— C, P°/P°P±Ps PíPsCḡPjPsPSP°P»CḡPSPsC— C, PµCḡP°PíC-C— P°P±Ps PíCḡPë PíPsPíPµCḡPµPrPSCḡPsPjCí PIPSCíC, CḡC-CëPSCḡPsPIPµPSPSPsPjCí PIPIPµPrPµPSPSC- P±C-C,, PsCíC,, PsPSP°C, Cí.

PhCÍPsP±P»PëPIPsCÍC,C- P·P°CÍC,PsCÍCzPIP°PSPSCÍ.

P°PsPrP°PIP°PSPSCÍ PeP°P»CHC†C-CĤ C,P° PIC-C,P°PjC-PSCf D. P°PsPrP°PIP°PSPSCÍ
PeP°P»CHC†C-CĤ C,P° PIC-C,P°PjC-PSCf D PSPµPsP±C...C-PrPSPµ PrP»CÍ PICÍC-C...
PiP°C†C-C°PSC,C-PI, P·P° PIPëPSCÍC,PePsPj PiP°C†C-C°PSC,C-PI P·
PiC-PiPµCĤPeP°P»CHC†C-C°PjC-C°CĤ (PrPëPI. CĤPsP·PrC-P» B«PÿPiPsCÍC-P±
P·P°CÍC,PsCÍCfPIP°PSPSCÍ C,P° PrPsP·PëB»).

P°C-PiPsPeP°P»CHC†C-C°PjC-CÍ. P†CÍPSCfCĤC†C† PiC-PiPsPeP°P»CHC†C-C°PjC-CĤ
PSPµPsP±C...C-PrPSPs PePsCĤPëPiCfPIP°C,Pë PrPs PiPsC†P°C,PeCf P»C-PeCfPIP°PSPSCÍ
PiCĤPµPiP°CĤP°C,PsPj P†PeCÍPrP¶PµPIP°^{B®}. P°C-PiPsPeP°P»CHC†C-C°PjC-CÍ PjPsP¶Pµ
PIPëPSPëPePSCfC,Pë PI P±CfPrCH-CÍPePëPñ C†P°CÍ PiCĤPsC,CÍPiPsPj P»C-PeCfPIP°PSPSCÍ
PiCĤPµPiP°CĤP°C,PsPj P†PeCÍPrP¶PµPIP°^{B®}. PñPsPSC-C,PsCĤPëPSPi CĤC-PIPSC-PI
PeP°P»CHC†C-CĤ CÍP»C-Pr PiCĤPsPIPsPrPëC,Pë PiPµCĤPµPr PIPiPµPrPµPSPSCÍPj
PiPsC†P°C,PePsPIPsC— PrPsP·Pë PiCĤPµPiP°CĤP°C,C† P†PeCÍPrP¶PµPIP°^{B®}, PiCĤPsC,CÍPiPsPj
PrPIPsC... C,PëP¶PSC-PI PiC-CÍP»CÍ PIPiPµPrPµPSPSCÍ PiPsC†P°C,PePsPIPsC— PrPsP·Pë,
CÍPeC%Ps PIPëPSPëPeP°CĤC,CH CÍPëPjPiC,PsPjPë P· PiC-PrPsP·CĤPsCĤ PSP°
PiC-PiPsPeP°P»CHC†C-C°PjC-CĤ (PrPëPI. CĤPsP·PrC-P» B«PµPsP±C-C†PSC-
CĤPµP°PeC†C-C—B» PrP»CÍ PsP·PSP°PñPsPjP»PµPSPSCÍ P· CÍPëPjPiC,PsPjP°PjPë).
P†PµPsP±C...C-PrPSPs CĤPsP·PiP»CÍPSCfC,Pë PrPsPrP°C,PePsPIPëPñ PjPsPSC-C,PsCĤPëPSPi
CĤC-PIPSCÍ PeP°P»CHC†C-CĤ PiC-Pr C†P°CÍ P»C-PeCfPIP°PSPSCÍ C† PiP°C†C-C°PSC,C-PI P·
C,,P°PeC,PsCĤP°PjPë CĤPëP·PëPeCf PiPsCÍPIPë PiC-PiPsPeP°P»CHC†C-C°PjC-C— P°P±Ps PI
C-PSCëPëC... PIPëPiP°PrPeP°C... P·P°P»PµP¶PSPs PIC-Pr PeP»C-PSC-C†PSPsPiPs CÍC,P°PSCf
PiP°C†C-C°PSC,P°.

PµP°C†C-C°PSC,Pë PiPsPIPëPSPSC- PiPsPIC-PrPsPjP»CÍC,Pë PiCĤPs CÍPëPjPiC,PsPjPë, CÍPeC-
PIPeP°P·C†CĤC,CH PSP° PiC-PiPsPeP°P»CHC†C-C°PjC-CĤ. PiPeC%Ps
PiC-PiPsPeP°P»CHC†C-C°PjC-CÍ PIPëPSPëPeP°C° PiC-Pr C†P°CÍ P»C-PeCfPIP°PSPSCÍ
PiCĤPµPiP°CĤP°C,PsPj P†PeCÍPrP¶PµPIP°^{B®}, PjPsP¶Pµ PIPëPSPëPePSCfC,Pë PiPsC,CĤPµP±P° C†
PrPsPrP°C,PePsPIPsPjC† P·P°CÍC,PsCÍCfPIP°PSPSC- PeP°P»CHC†C-C°PIPëC... PrPsP±P°PIPsPe
C,P° PrPsPrP°C,PePsPIPsPjC† PjPsPSC-C,PsCĤPëPSPiC† CĤC-PIPSC-PI PeP°P»CHC†C-CĤ.

P' PiPµCĤC-PsPr PiC-CÍP»CÍCĤPµC°CÍC,CĤP°C†C-PñPSPsPiPs P·P°CÍC,PsCÍCfPIP°PSPSCÍ
PiPsPIC-PrPsPjP»CÍP»PsCÍCÍ PiCĤPs C,CÍP¶PeCf CÍPëPjPiC,PsPjP°C,PëC†PSCf
PiC-PiPsPeP°P»CHC†C-C°PjC-CĤ (PIPëP»CĤC†P°CĤC†Pë P»PµC,P°P»CHPSC- PIPëPiP°PrPePë)
(PrPëPI. CĤPsP·PrC-P» B«PµPsP±C-C†PSC- CĤPµP°PeC†C-C—B»), PiCĤPë C†CHPsPjC†
P±C-P»CHCëC-CÍC,CH PIPëPiP°PrPeC-PI PIPëPSPëPeP°P»Pë PiCĤPsC,CÍPiPsPj PiPµCĤCëPëC...
C,PëP¶PSC-PI PIC-Pr PiPsC†P°C,PeCf P»C-PeCfPIP°PSPSCÍ, P°P»Pµ PjPsPiP»Pë
PIPëPSPëPeP°C,Pë C- PiC-P·PSC-CëPµ.

P†PëCĤPePsPIP° PSPµPrPsCÍC,P°C,PSC-CÍC,CH. PµP°C†C-C°PSC,Pë P· C,CÍP¶PePsCĤ
PSPëCĤPePsPIPsCĤ PSPµPrPsCÍC,P°C,PSC-CÍC,CĤ (PeP»C-CĤPµPSCÍ PeCĤPµP°C,PëPSC-PSCf
< 30 PjP»/C...PI) P°P±Ps PiP°C†C-C°PSC,Pë PSP° PrC-P°P»C-P·C- PSP°P»PµP¶P°C,CH PrPs
PiCĤC†PiPë CĤPëP·PëPeCf CĤPsP·PIPëC,PeCf PiC-PiPsPeP°P»CHC†C-C°PjC-C—. P PëP·PëPe
CĤPsP·PIPëC,PeCf PiC-PiPsPeP°P»CHC†C-C°PjC-C— C,P° CÍC†PiC†C,PSCHPsPiPs
PiC-PrPñPsPjC† CĤC-PIPSCÍ PiP°CĤP°C,PëCĤPµPsC—PrPSPsPiPs PiPsCĤPjPsPSCf
P·P±C-P»CHCëC†C°C,CHCÍCÍ P·C- P·P±C-P»CHCëPµPSPSCÍPj CÍC,C†PiPµPSCÍ
PSPëCĤPePsPIPsC— PSPµPrPsCÍC,P°C,PSPsCÍC,C-. PµPsCÍC,C-PñPSPëPñ
PjPsPSC-C,PsCĤPëPSPi CĤC-PIPSC-PI PeP°P»CHC†C-CĤ PsCÍPsP±P»PëPIPs PIP°P¶P»PëPIPëPñ
PrP»CÍ C†PëC... PiP°C†C-C°PSC,C-PI.

PhCfC, PμPsPSPμPeCfPsP· C%oPμP»PμPİPë (PhKp©). Pj PİP°C†C-C"psc,C-PI, CİPeC-
PsC,CfPëPjCfPİP°P»Pë PİCfPμPİP°CfP°c, P†PeCİP†P¶PμPİP°B®, C‡P°CfC,Ps
PİPsPIC-PrPsPjP»CİP»PsCfCf PİCfPs PİPëPSPëPePSPμPSPSCİ PhKp© (PrPëPI. CfPsP·PrC-P»
B«PμPsP±C-C‡PSC- CfPμP°PeC†C-C-B»).

PμPsC‡P°c,PsPe P»C-PeCfPİP°PSPSCİ/ PSPsPİPëPnë PeCfCfCf P»C-PeCfPİP°PSPSCİ
PİPsPİPëPSPμPS P±CfC,Pë PIC-PrPeP»P°PrPμPSPëPnë C† PİP°C†C-C"psc,C-PI P·
PSPμP·P°PİPsC"PSPëPjPë PIC-PrPeCfPëC,PëPjPë CfCfP°P¶PμPSPSCİPjPë PjBf™ CİPePëC...
C,PeP°PSPëPS C† CfPsC,PsPIC-Pnë PİPsCfPsP¶PSPëPSC-. P PμPePsPjPμPSP†CfC"C,ChCfCİ
CfC,PsPjP°c,PsP»PsPİC-C‡PSPëPnë PsPİP»CİP† P· PIC-PrPİPsPIC-PrPSPëPj
PİCfPsC,,C-P»P°PeC,PëC‡PSPëPj CfC,PsPjP°c,PsP»PsPİC-C‡PSPëPj P»C-PeCfPİP°PSPSCİPj C,P°
C-PSP†PëPIC-PrCfP°P»ChPSP° PsC†C-PSPeP° C†PİC-PİPIC-PrPSPsC¶PμPSPSCİ
PePsCfPëCfC,Ch/CfPëP·PëPe PİPμCfPμPr PİPsC‡P°c,PePsPj P·P°CfC,PsCfCfPİP°PSPSCİ
PrPμPSPsCfCfPjP°P±Cf.

PμCfPë PsC†C-PSC†C- CfPëP·PëPeCf CfPsP·PİPëC,PeC† PhKp© C† PİP°C†C-C"psc,P°
CfP»C-Pr PjP°c,Pë PSP° C†PİP°P·C- C,P°PeC- C‡PëPSPSPëPePë CfPëP·PëPeCf:

B· PμC,,PμPeC,PëPİPSC-CfC,Ch P»C-PeP°CfCfChPePsPİPs P·P°CfPsP±Cf, C%oPs
C†PİCfPëC‡PëPSCİC" PİP°P»ChPjCfPİP°PSPSCİ PeC-CfC,PePsPİPsC— CfPμP·PsCfP±C†C-C—
(P±C-P»ChC¶ PİPëCfPsPePëPnë CfPëP·PëPe C† CfP°P·C- P·P°CfC,PsCfCfPİP°PSPSCİ
C†PëP»ChPSPsPrC-CfC‡PëC... P»C-PeP°CfCfChPePëC... P·P°CfPsP±C-PI), C¶P»CİC...
PİPİPμPrPμPSPSCİ (P±C-P»ChC¶ PİPëCfPsPePëPnë CfPëP·PëPe C† CfP°P·C-
PİP°CfPμPSC,PμCfP°P»ChPSPsPİPs PİPİPμPrPμPSPSCİ) C,P° C†CfPjP°CfPSP° PrPsP·P°
P»C-PeP°CfCfChPePëC... P·P°CfPsP±C-PI, CİPeC- P·P°CfC,PsCfPsPICfPİP°P»Pë PrP»Cİ
PİP°P»ChPjCfPİP°PSPSCİ PeC-CfC,PePsPİPsC— CfPμP·PsCfP±C†C-C—;

B· CfP°Pe, C†CfPİCfC,PSC- P·P°C...PİPsCfCfPİP°PSPSCİ (PSP°PİCfPëPeP»P°Pr
P°PSPμPjC-Cİ, PePsP°PİCfP»PsPİP°c,C-Cİ, C-PSC,,PμPeC†C-Cİ),
C,CfC,CfPSPsPİP°P»C-PSPSCİ;

B· C†CfPİCfC,PSCİ C,PμCfP°PİC-Cİ: PePsCfC,PëPePsCfC,PμCfPsC—PrPë,
C...C-PjC-PsC,PμCfP°PİC-Cİ, C-PSPİC-P±C-C,PsCfPë P°PSPİC-PsPİPμPSPμP·C†,
PİCfPsPjPμPSPμPİP° C,PμCfP°PİC-Cİ PİPsP»PsPİPë C,P° C¶PëC—;

B· PİPsPİP°PSP° PİC-PİC-C"PSP° CfPsC,PsPİPsC— PİPsCfPsP¶PSPëPSPë,
P·P°C...PİPsCfCfPİP°PSPSCİ PİP°CfPsPrPsPSC,P°, P·C†P±PSC- PİCfPsC,PμP·Pë, C%oPs
PİPsPİP°PSPs PİCfPëP»CİPİP°CfC,Ch, PSP°CİPİPSC-CfC,Ch
CfC,PsPjP°c,PsP»PsPİC-C‡PSPsPİPs P·P°C...PİPsCfCfPİP°PSPSCİ, C-PSPİP°P·C-PnëPSPμ
CfC,PsPjP°c,PsP»PsPİC-C‡PSPμ PIC,CfCfC‡P°PSPSCİ (PSP°PİCfPëPeP»P°Pr
PİPëPrP°P»PμPSPSCİ P·C†P±P°).

P' CfC- PİP°C†C-C"psc,Pë PİPsPİPëPSPSC- PİC-PrC,CfPëPjCfPİP°c,Pë PrPsCfC,P°c,PSCf
PİC-PİC-C"psc† CfPsC,PsPİPsC— PİPsCfPsP¶PSPëPSPë, PİCfPsC...PsPrPëC,Pë
PİPμCfC-PsPrPëC‡PSC- CfC,PsPjP°c,PsP»PsPİC-C‡PSC- PsPİP»CİP†Pë C- PSPμPİP°PnëPSPs
PİPsPIC-PrPsPjP»CİC,Pë PİCfPs P±C†PrCh-CİPeC- C†PëPjPİC,PsPjPë P· P±PsPeC†
CfPsC,PsPİPsC— PİPsCfPsP¶PSPëPSPë, C,P°PeC- CİPe CfCfC...P»PëPIC-CfC,Ch P·C†P±C-PI,
P±C-P»Ch P°P±Ps PSP°P±CfCİPe, PİPëCfP°P·PePë, C%oPs PSPμ P·P°PİPsCfCfC,ChCfCİ
P°P±Ps PİCfPsCfPëPİP°CfC,ChCfCİ, PİC-Pr C‡P°C† P»C-PeCfPİP°PSPSCİ
PrPμPSPsCfCfPjP°P±PsPj. PμC-Pr C‡P°C† P»C-PeCfPİP°PSPSCİ C-PSPİP°P·PëPİPSC-
CfC,PsPjP°c,PsP»PsPİC-C‡PSC- PİCfPsC†PμPrCfCfPë PİPsC,CfC-P±PSPs PİCfPsPİPsPrPëC,Pë
P»PëC¶Pμ PİC-C†P»Cİ CfPμC,PμP»ChPSPsPİPs CfPsP·PİP»CİP†C†, C,P°PePëC...

PiC7PsCtPmPrCfC7 CfP»C-Pr CfPSPePeP°C,Pë P±PmP·PiPsCfPmC7PmPrPSC7Ps PiPmC7PmPr PiPsC±P°C,PePsPj PIPmPrPmPSPSC7 PiC7PmPiP°C7P°C,Cf P±PeCfPrP¶PmPIP°^B.

PmP»P°PS PIPmPrPmPSPSC7 PsPeC7PmPjPëC... PiP°CtC-C”PSC,C-PI, Cf C7PePëC...
C7PsP·PIPëPSCfP»PëCfC7 PhPkP©, PiPsPIPëPSPmPS P±CfC,Pë C7PsP·C7PsP±P»PmPSPëPNë PI
C,C-CfPSC-PNë CfPiC-PIPiC7P°CtC- P»C-PeCfC7C±PëPj P»C-PeP°C7PmPj C,P°
CfC,PsPjP°C,PsP»PsPiPsPj P°P±Ps C%PmP»PmPiPSPs-P»PëCtCH7PsPIPëPj C...C-C7CfC7PiPsPj,
C7PePëPNë PjP°C” PrPsCfPIC-Pr P»C-PeCfPIP°PSPSC7 PhPkP©. PÿPëPjC±P°CfPsPIPm
PiC7PëPiPëPSPmPSPSC7 P»C-PeCfPIP°PSPSC7 PiC7PmPiP°C7P°C,PsPj P±PeCfPrP¶PmPIP°^B
PSPmPsP±C...C-PrPSPs C7PsP·PiP»C7PrP°C,Pë PrPs PjPsPjPmPSC,Cf P·P°PIPmC7C€PmPSPSC7
C...PIPsc7PsP±Pë C- Cf C7P°P·C- PjPsP¶P»PëPIPsCfC,C- P·PjPmPSC€CfPIP°C,Pë
PiC7PsPIPpsPeCfC7C±C- C,,P°PeC,PsC7Pë.

PhCfC,PmPsPSPmPeC7PsP· P·PsPIPSC-C€PSC7PsPiPs CfP»CfC...PsPIPpsPiPs PiC7PsC...PsPrCf. Pj
C7P°P·C- P·P°CfC,PsCfCfPIP°PSPSC7 PrPmPSPsCfCfPjP°P±Cf PiPsPIC-PrPsPjP»C7P»PsCfC7
PiC7Ps PsCfC,PmPsPSPmPeC7PsP· P·PsPIPSC-C€PSC7PsPiPs CfP»CfC...PsPIPpsPiPs
PiC7PsC...PsPrCf. PhPsP¶P»PëPIPëPjPë C±PëPSPSPëPeP°PjPë C7PëP·PëPeCf CtCH7PsPiPs
P·P°PiP°P»PmPSPSC7 C” PIPëPePsC7PëCfC,P°PSPSC7 CfC,PmC7PsC—PrC-PI C-
C...C-PjC-PsC,PmC7P°PiC-C7, P° C,P°PePsP¶ P»PsPeP°P»CH7PSC- C,,P°PeC,PsC7Pë
C7PëP·PëPeCf, C,P°PeC- C7Pe C-PSC,,PmPeCtC-C— C,P° C,C7P°PIPjPë.
P’C-C7PsPiC-PrPSC-CfC,CH PsCfC,PmPsPSPmPeC7PsP·Cf P·PsPIPSC-C€PSC7PsPiPs
CfP»CfC...PsPIPpsPiPs PiC7PsC...PsPrCf CfP»C-Pr PIC7P°C...PsPICfPIP°C,Pë Cf
PiP°CtC-C”PSC,C-PI, C7PeC- PsC,C7PëPjCfC7C,CH PrPmPSPsCfCfPjP°P± C,P° PjP°C7C,CH
CfPëPjPiC,PsPjPë P· P±PsPeCf PsC7PiP°PSC-PI CfP»CfC...Cf, Cf C,.C±. C...C7PsPSC-C±PSC-
C-PSC,,PmPeCtC-C— PICfC...P°.

PhC,PëPiPsPIC- PiPmC7PmP»PsPjPë CfC,PmPiPSP°. PmC7Ps P°C,PëPiPsPIC- PiPmC7PmP»PsPjPë
CfC,PmPiPSP° PiPsPIC-PrPsPjP»C7P»PsCfC7 Cf PiP°CtC-C”PSC,C-PI, C7PeC-
PsC,C7PëPjCfPIP°P»Pë PrPmPSPsCfCfPjP°P± (PrPëPI. C7PsP·PrC-P» B«PmPsP±C-C±PSC-
C7PmP°PeCtC-C—B»). PhC,PëPiPsPIC- PiPmC7PmP»PsPjPë CfC,PmPiPSP° PjPsP¶CfC,CH
PIPëPSPëPeP°C,Pë PiC7Pë PSPmP·PSP°C±PSC-PNë C,C7P°PIPjC- P°P±Ps P·P° C—C—
PIC-PrCfCfC,PSPsCfC,C- PI CfCfP±C,C7PsC...P°PSC,PmC7PSC-PNë P°P±Ps
PrC-P°C,,C-P·P°C7PSC-PNë PrC-P»C7PSCtC- CfC,PmPiPSP°. PÿPiPmCtPëC,,C-C±PSC-
C7PmP·CfP»CH7C,P°C,Pë C7PmPSC,PiPmPSPsP»PsPiC-C±PSPsPiPs PrPsCfP»C-PrP¶PmPSPSC7
C...P°C7P°PeC,PmC7PëP·CfC7C,CH CtC- C7PIPëC%P°. PÿP°PePsP¶ PiC7Ps P°C,PëPiPsPIC-
PiPmC7PmP»PsPjPë CfC,PmPiPSP° PiPsPIC-PrPsPjP»C7P»PsCfC7 Cf PiP°CtC-C”PSC,C-PI P·
PiPmPIPSPëPjPë CfCfPiCfC,PSC-PjPë CfC,P°PSP°PjPë (C,P°PePëPjPë C7Pe PrPmC,,C-CtPëC,
PIC-C,P°PjC-PSCf D, C7PmPIPjP°C,PsC—PrPSPëPNë P°C7C,C7PëC,,
PiC-PiPsC,,PsCfC,,P°C,P°P·C-C7) C,P° PiC7Pë P·P°CfC,PsCfCfPIP°PSPSC- PiPmPIPSPëC...
C,,P°C7PjP°CtPmPIC,PëC±PSPëC... P·P°CfPsP±C-PI (PSP°PiC7PëPeP»P°Pr
P±C-C,,PsCfC,,PsPSP°C,C-PI, PiP»C7PePsPePsC7C,PëPePsC—PrC-PI, C-PSPiC-P±C-C,PsC7C-PI
PiC7PsC,PsPSPsC— PiPsPjPiPë). P|C- C7PIPëC%P° C,P°PePsP¶ PIPëPSPëPeP°P»Pë P±PmP·
P°PSC,PëC7PmP·PsC7P±C,PëPIPSPsC— C,PmC7P°PiC-C—. PhPSP°P»PsPiC-C±PSC-
PiPmC7PmP»PsPjPë, PiC7Ps C7PeC- PiPsPIC-PrPsPjP»C7P»PsCfC7 Cf P·PIb7™ C7P·PeCf P·
PiC7PëPNëPsPjPsPj P±C-C,,PsCfC,,PsPSP°C,C-PI, C±P°CfC,Ps C”
P±C-P»P°C,PmC7P°P»CH7PSPëPjPë; C,P°PePëPj C±PëPSPsPj, PSPmPsP±C...C-PrPSPs
PsP±CfC,PmP¶CfPIP°C,Pë PiC7PsC,PëP»PmP¶PSPm CfC,PmPiPSPs Cf PiP°CtC-C”PSC,C-PI,
C7PeC- PsC,C7PëPjCfC7C,CH PrPmPSPsCfCfPjP°P±, P· PiC-PrC,PIPmC7PrP¶PmPSPëPj
PiPmC7PmP»PsPjPsPj C,C-P»P° CfC,PmPiPSPsPiPsC— PeC-CfC,PePë. PmPsC,C7C-P±PSPs
C7PsP·PiP»C7PSCfC,Pë PIC-PrPjC-PSCf PiC7PmPiP°C7P°C,Cf P±PeCfPrP¶PmPIP°^B PrP»C7
PiP°CtC-C”PSC,C-PI P· PiC-PrPsP·C7PsC7 PSP° P°C,PëPiPsPIPëPNë PiPmC7PmP»PsPj

СГС,РμPиPSP° PиC-Pr C±P°CГ PsC†C-PSPePë CГC,P°PSCГ PиP°C†C-C"PSC,P° PSP° PsCГPSPsPIC-C-PSPPrPëPIC-PrCГP°P»CHPSPsPiPs CГPиC-PIPIC-PrPSPsC€PμPSPSCИ PePsCГPëCГC,CH/CГPëP·PëPe. PиC-Pr C±P°CГ P»C-PeCГPIP°PSPSCИ PrPμPSPsCГCГPjP°P±PsPj PиP°C†C-C"PSC,P°Pj PSPμPsP±C...C-PrPSPs CГPμPePsPjPμPSPPrCГPIP°C,Pë PиPsPIC-PrPsPjP»CИC,Pë PиCГPs PSPsPIPëP№ P°P±Ps PSPμP·PIPëC±PSPëP№ P±C-P»CH PI CГC,РμPиPSC-, PeCГP»CHC€PsPIPsPjCГ CГCГPиP»PsP±C- P°P±Ps PиP°C...PsPIC-P№ PrC-P»CИPSC†C-. PиP°C†C-C"PSC,C-PI P· C,P°PePëPjPë CГPëPjPиC,PsPjP°PjPë CГP»C-Pr PиPμCГPμPIC-CГCИC,Pë PSP° PSP°CИPIPSC-CГC,CH PSPμPиPsPIPsPиPs PиPμCГPμP»PsPjCГ CГC,РμPиPSP°.

P°C-PиPμCГPeP°P»CHC†C-C"PjC-CИ PиC-CГP»CИ PиCГPëPиPëPSPμPSPSCИ
P·P°CГC,PsCГCГPIP°PSPSCИ PиCГPμPиP°CГP°C,CГ CГ PиP°C†C-C"PSC,C-PI C-P·
PиC-PиP°PSC,PsPeP»C-C,PëPSPSPëPjPë PиCГC...P»PëPSP°PjPë PeC-CГC,PsPe, P° C,P°PePsP¶ C-P·
PeC-CГC,PePsPIPsCГ CГPëCГC,РμPjPsCГ, C%Ps CГPsCГC,Рμ. PиCГPs PeP»C-PSC-C±PSPs
P·PSP°C±CГC%Cr PиC-PиPμCГPeP°P»CHC†C-C"PjC-CГ, C%Ps PиPsC,CГPμP±CГPIP°P»P°
PиPsCГPиC-C,P°P»C-P·P°C†C-C— C,P° CГCГPeP»P°PrPSCГPIP°P»P°CГCИ PиPsCГC,CГPëPj
CГCГP°P¶PμPSPSCИPj PSPëCГPsPe, PиPsPIC-PrPsPjP»CИP»Pë PиCГPë
P·P°CГC,PsCГCГPIP°PSPSC- PиCГPμPиP°CГP°C,CГ P†PeCГPrP¶PμPIP°^B CГ PиP°C†C-C"PSC,C-PI
C-P· PиC-PиP°PSC,PsPeP»C-C,PëPSPSPëPjPë PиCГC...P»PëPSP°PjPë PeC-CГC,PsPe C±PμCГPμP·
C,PëP¶PSC- C±Pë PjC-CГCИC†C- PиC-CГP»CИ PиCГPëPиPëPSPμPSPSCИ P»C-PeCГPIP°PSPSCИ.

PиC-CГP»CИ PиCГPëPиPëPSPμPSPSCИ P»C-PeCГPIP°PSPSCИ PSPμPsP±C...C-PrPSPs PePsPSC,CГPsP»CГPиP°C,Pë PиP°C†C-C"PSC,C-PI C%PsPrPs PIPëPSPëPePSPμPSPSCИ PsP·PSP°Pe C- CГPëPjPиC,PsPjC-PI PиC-PиPμCГPeP°P»CHC†C-C"PjC-C— C-P· PиPμCГC-PsPrPëC±PSPëPj PIPëP·PSP°C±PμPSPSCИPj CГC-PIPSCИ PeP°P»CHC†C-CГ CГ CГPëCГPsPIP°C,C†C- PeCГPsPIC- C,P° PиPsPIC,PsCГPSPsCГ PsC†C-PSPePsCГ PSPμPsP±C...C-PrPSPsCГC,C- PrPsPrP°C,PePsPIPsPiPs P·P°CГC,PsCГCГPIP°PSPSCИ PиCГPμPиP°CГP°C,C-PI PeP°P»CHC†C-CГ C,P° PIC-C,P°PjC-PSCГ D (PrPëPI. CГPsP·PrC-P» B«PиPsP±C-C±PSC- CГPμP°PeC†C-C-B»).

PиCГPμPиP°CГP°C, P†PeCГPrP¶PμPIP°^B PSPμ CГPμPePsPjPμPSPPrCГC,CHCГCИ PиP°C†C-C"PSC,P°Pj C-P· PeC-CГC,PePsPIPsCГ CГPëCГC,РμPjPsCГ, C%Ps CГPsP·PIPëPIP°C"C,CHCГCИ (PrPëPI. CГPsP·PrC-P» B«PÿPиPsCГC-P± P·P°CГC,PsCГCГPIP°PSPSCИ C,P° PrPsP·PëB»). PÿP°PePsP¶ PиPsPIC-PrPsPjP»CИP»PsCГCИ PиCГPs PeP»C-PSC-C±PSPs CГCГC,C,C"PICГ PиC-PиPμCГPeP°P»CHC†C-C"PjC-CГ CГ C†C-C" C— PиCГCГPиPë PиP°C†C-C"PSC,C-PI, C%Ps PIPëPSPëPeP°P»P° C±PμCГPμP· PиCГPsPjC-P¶PsPe C±P°CГCГ PIC-Pr C,PëP¶PSC-PI PrPs PjC-CГCИC†C-PI PиC-CГP»CИ PиCГPëPиPëPSPμPSPSCИ P·P°CГC,PsCГCГPIP°PSPSCИ PиCГPμPиP°CГP°C,CГ.

P†PSC€C- PиP°C,PsP»PsPiC-C—. PиP°C†C-C"PSC,Pë, CИPeC- PsC,CГPëPjCГCГC,CH PиCГPμPиP°CГP°C, P†PeCГPrP¶PμPIP°^B, PSPμ PиPsPIPëPSPSC- PsPrPSPsC±P°CГPSPs P·P°CГC,PsCГPsPICГPIP°C,Pë C-PSC€C- P»C-PeP°CГCГCHPeC- P·P°CГPsP±Pë, CИPeC- PjC-CГC,CИC,CH PrPμPSPsCГCГPjP°P± (CГ P·PIBГ™ CИP·PeCГ P· PsCГC,РμPsPиPsCГPsP·PsPj).

PиP°C†C-C"PSC,Pë, CИPeC- PsC,CГPëPjCГCГC,CH PиCГPμPиP°CГP°C, P†PeCГPrP¶PμPIP°^B, PSPμ PиPsPIPëPSPSC- PsPrPSPsC±P°CГPSPs P·P°CГC,PsCГPsPICГPIP°C,Pë P±C-C,,PsCГC,,PsPSP°C,Pë.

P—P»PsCИPeC-CГPSC-CГC,CH PиC-PиP°PSC,PsPeP»C-C,PëPSPSPsC— PиCГC...P»PëPSPë P°P±Ps PиCГPsPиCГPμCГCГPIP°PSPSCИ PjPμC,P°CГC,P°P·CГPIP°PSPSCИPj PIPëPSPëPeP°C" PSPμC±P°CГC,Ps C- C" PIC-PrPsPjPëPj CГPëP·PëPePsPj CГ PиP°C†C-C"PSC,C-PI P· PиC-PиP°PSC,PsPeP»C-C,PëPSPSPsCГ PиCГC...P»PëPSPsCГ PeC-CГC,PsPe. PкPμPsP±C...C-PrPSPs

PePsPSC, CĤPsP»CĤPIP°C, Pë CÍC, P°PS PíP°C†C-C°PSC, C-PI PSP° PSP°CĬPIPSC-CÍC, CĤ
CĤPµPSC, PiPµPSPsP»PsPiC-C†PSPëC... PsP·PSP°Pe P·P»PsCĬPeC-CÍPSPsCÍC, C-, PSPsPIPëC...
PrC-P»CĬPSPsPe PíCĤPsCÍPIC-C, P»PµPSPSCĬ P°P±Ps PsCÍC, PµPsP»C-P·Cí. P°PscÍC, CíPíPSC-
PeP»C-PSC-C†PSC- PrP°PSC- PSPµ PIPeP°P·CíCĤC, CĤ PSP° PíC-PrPIPëC%PµPSPëPNë
CĤPëP·PëPe P·P»PsCĬPeC-CÍPSPsCÍC, C- Cí PíP°C†C-C°PSC, C-PI P·
PiC-PiP°PSC, PsPeP»C-C, PëPSPSPsCĤ PíCíC...P»PëPSPsCĤ PeC-CÍC, PsPe, CĬPeC-
PsC, CĤPëPjCíCĤC, CĤ PíCĤPµPíP°CĤP°C, P†PeCÍPrP¶PµPIP°^{B®}.

P—P°CÍC, PµCĤPµP¶PµPSPSCĬ C%PsPrPs PrPsPíPsPjC-P¶PSPëC... CĤPµC±PsPIPëPS. PíPµPNë
P»C-PeP°CĤCÍCĤPePëPNë P·P°CÍC-P± PjC-CÍC, PëC, CĤ CÍPsCĤP±C-C, . PµP°C†C-C°PSC, Pë P·
CĤC-PrPeC-CÍPSPëPjPë CÍPíP°PrPePsPIPëPjPë PíCĤPsP±P»PµPjP°PjPë,
PíPsPIBĤ™ CĬP·P°PSPëPjPë P· PSPµPíPµCĤPµPSPsCÍPëPjC-CÍC, CĤ C, CĤCíPeC, PsP·Pë, PSPµ
PíPsPIPëPSPSC- P·P°CÍC, PsCÍPsPICíPIP°C, Pë C†PµPNë P»C-PeP°CĤCÍCĤPePëPNë P·P°CÍC-P±.

PíPµPNë P»C-PeP°CĤCÍCĤPePëPNë P·P°CÍC-P± PjC-CÍC, PëC, CĤ PjPµPSC€Pµ 1 PjPjPsP»CĤ
PSP°C, CĤC-CĤ (23 PjPi) PSP° 120 PjPi, C, PsP±C, Ps PíCĤP°PeC, PëC±PSPs PIC-P»CĤPSPëPNë
PIC-Pr PSP°C, CĤC-CĤ.

*P—P°CÍC, PsCÍCáPIP°PSPSCĬ Cá PíPµCĤC-PsPr PIP°PiC-C, PSPsCÍC, C- P°P±Ps
PiPsPrCáPIP°PSPSCĬ PiCĤCáPrPrCĤ.*

P°PíC-C, PSC-CÍC, CĤ. P°C-PrCÍCíC, PSC- PrPsCÍC, P°C, PSC- PrP°PSC- C%PsPrPs
P·P°CÍC, PsCÍCíPIP°PSPSCĬ PrPµPSPsCÍCíPjP°P±Cí PIP°PiC-C, PSPëPj P¶C-PSPeP°Pj. Pj
PrPsCÍP»C-PrP¶PµPSPSCĬC... PSP° C, PIP°CĤPëPSP°C... P±CíP»Ps
PíCĤPsPrPµPjPsPSCÍC, CĤPsPIP°PSPs CĤPµPíCĤPsPrCíPeC, PëPIPSCí C, PsPeCÍPëC±PSC-CÍC, CĤ
(PrPëPI. PíC-PrCĤPsP·PrC-P» B«P°P°PSC- PrPsPeP»C-PSC-C†PSPëC... PrPsCÍP»C-PrP¶PµPSCĤ
P· P±PµP·PíPµPePëB»).

PµCĤPµPíP°CĤP°C, P†PeCÍPrP¶PµPIP°^{B®} PSPµ CĤPµPePsPjPµPSPrCíC°C, CĤCÍCĬ PrP»CĬ
P·P°CÍC, PsCÍPsPICíPIP°PSPSCĬ PIP°PiC-C, PSPëPj C, P° P¶C-PSPeP°Pj
CĤPµPíCĤPsPrCíPeC, PëPIPSPsPiPs PIC-PeCí, CĬPeC- PSPµ PIPëPePsCĤPëCÍC, PsPICíCĤC, CĤ
P·P°CÍPsP±Pë PePsPSC, CĤP°C†PµPíC†C-C—. P-C-PSPeP°Pj CÍP»C-Pr
CĤPµPePsPjPµPSPrCíPIP°C, Pë CíPSPëPeP°C, Pë PIP°PiC-C, PSPsCÍC, C- PI PíCĤPsC†PµCÍC-
P»C-PeCíPIP°PSPSCĬ PíCĤPµPíP°CĤP°C, PsPj P†PeCÍPrP¶PµPIP°^{B®} C- C%PsPSP°PNëPjPµPSC€Pµ
PíCĤPsC, CĬPiPsPj 5 PjC-CÍCĬC†C-PI PíC-CÍP»CĬ C†CĤPsPiPs. P°CíPrCĤ-CĬPeC-
PµC, PµPeC, Pë PíCĤPµPíP°CĤP°C, Cí P†PeCÍPrP¶PµPIP°^{B®}, PNëPjPsPIC-CĤPSC-C€Pµ,
P±CíPrCíC, CĤ CÍPëP»CĤPSC-C€PëPjPë PíC-Pr C†P°CÍ PrCĤCíPiPsPiPs C, P°
C, CĤPµC, CĤPsPiPs C, CĤPëPjPµCÍC, CĤC-PI PIP°PiC-C, PSPsCÍC, C-, PsCÍPeC-P»CĤPePë
PjPsPSPsPeP»PsPSP°P»CĤPSC- P°PSC, PëC, C-P»P° PIC-P»CĤPSC-C€Pµ PíCĤPsC...PsPrCĬC, CĤ
C†PµCĤPµP· PíP»P°C†PµPSC, Cí PI P»C-PSC-PNëPSPsPjCí PíPsCĤCĬPrPeCí P· CĤPsP·PIPëC, PePsPj
PIP°PiC-C, PSPsCÍC, C-, PíCĤPë C†CĤPsPjCí PSP°PNëP±C-P»CĤC€P° PeC-P»CĤPeC-CÍC, CĤ
PíCĤPsC...PsPrPëC, CĤ PíC-Pr C†P°CÍ C, CĤPµC, CĤPsPiPs C, CĤPëPjPµCÍC, CĤCí.

P°CĤCíPrPSPµ PIPëPiPsPrPsPICíPIP°PSPSCĬ. PkPµPIC-PrPsPjPs, C†Pë PIPëPIPsPrPëC, CĤCÍCĬ
PrPµPSPsCÍCíPjP°P± P· PíCĤCíPrPSPëPj PjPsP»PsPePsPj P»CĤPrPëPSPë. PkPµ PjPsP¶Pµ
P±CíC, Pë PIPëPeP»CĤC†PµPSPëPNë CĤPëP·PëPe PrP»CĬ
PSPsPIPSP°CĤPsPrP¶PµPSPëC.../PSPµPjPsPIP»CĬC, . P°PscÍP»C-PrP¶PµPSPSCĬ PSP°
PjPëC€P°C... P· PSPsPeP°CíC, PSPëPj PiPµPSPsPj PíPsPeP°P·P°P»Pë, C%Ps
PIC-PrCÍCíC, PSC-CÍC, CĤ RANKL PíC-Pr C†P°CÍ PIP°PiC-C, PSPsCÍC, C- PjPsP¶Pµ
PIPíP»PëPIP°C, Pë PSP° PrPsP·CĤC-PIP°PSPSCĬ PjPsP»PsC†PSPëC... P·P°P»PsP·,
PíCĤPëP·PIPsPrCĬC†Pë PrPs PíPsCĤCíC€PµPSPSCĬ P»P°PeC, P°C†C-C— PíC-CÍP»CĬ
PíPsP»PsPiC-PI (PrPëPI. PíC-PrCĤPsP·PrC-P» B«P°P°PSC- PrPsPeP»C-PSC-C†PSPëC...

PrPsCÍP»C-PrP¶PµPSCĤ P· P±PµP·PīPµPePëB»). PkPµPsP±C...C-PrPSPs PīCĤPëPNēPSCĬC,Pë
CĤC-CēPµPSPSCĬ PīCĤPs PIC-PrPjPsPICr PIC-Pr PīCĤCfPrPSPsPiPs
PIPëPiPsPrPsPICfPIP°PSPSCĬ P°P±Ps PIC-PrPjPsPICr PIC-Pr C,PµCĤP°PīC-C—
PīCĤPµPīP°CĤP°C,PSPj P†PeCÍPrP¶PµPIP°^{B®}, PīCĤP°C...PsPICrCĤC†Pë PePsCĤPëCÍC,CH
PīCĤCfPrPSPsPiPs PIPëPiPsPrPsPICfPIP°PSPSCĬ PrP»CĬ
PSPsPiPsPSP°CĤPsPrP¶PµPSPsPiPs/PSPµPjPsPIP»CĬC,Pë C,P° PePsCĤPëCÍC,CH
P»C-PeCfPIP°PSPSCĬ PīCĤPµPīP°CĤP°C,PSPj P†PeCÍPrP¶PµPIP°^{B®} PrP»CĬ P¶C-PSPePë.

P µPīCĤPsPrCfPeC,PëPIPSP° C,,CfPSPeC†C-CĬ. P°P°PSC- C%oPsPrPs PIPīP»PëPICf
PrPµPSPsCÍCfPjP°P±Cf PSP° CĤPµPīCĤPsPrCfPeC,PëPIPSCf C,,CfPSPeC†C-CH Cf
P»CHPrPëPSPë PIC-PrCÍCfC,PSC-. P°PsCÍP»C-PrP¶PµPSPSCĬ PSP° C,PIP°CĤPëPSP°C... PSPµ
PīPsPeP°P·P°P»Pë PīCĤCĬPjPëC... P°P±Ps PSPµPīCĤCĬPjPëC... CēPeC-PrP»PëPIPëC...
PIPīP»PëPIC-PI PSP° CĤPµPīCĤPsPrCfPeC,PëPIPSCf C,,CfPSPeC†C-CH (PrPëPI.
PīC-PrCĤPsP·PrC-P» B«P°P°PSC- PrPsPeP»C-PSC-C†PSPëC... PrPsCÍP»C-PrP¶PµPSCĤ P·
P±PµP·PīPµPePëB»).

*P—PrP°C,PSC-CÍC,CH PIPīP»PëPIP°C,Pë PSP° CēPIPëPrPeC-CÍC,CH CĤPµP°PeC†C-C— PīCĤPë
PePµCĤCáPIP°PSPSC- P°PIC,PsC,CĤP°PSCÍPīPsCĤC,PSPj P°P±Ps C-PSCēPëPjPë
PjPµC...P°PSC-P·PjP°PjPë.*

PµCĤPµPīP°CĤP°C, P†PeCÍPrP¶PµPIP°^{B®} PSPµ PIPīP»PëPIP°C” P°P±Ps PjP°C”
PSPµP·PSP°C†PSPëPNē PIPīP»PëPI PSP° CēPIPëPrPeC-CÍC,CH CĤPµP°PeC†C-C— PīCĤPë
PePµCĤCfPIP°PSPSC- P°PIC,PsC,CĤP°PSCÍPīPsCĤC,PSPj P°P±Ps CĤPsP±PsC,C- P· C-PSCēPëPjPë
PjPµC...P°PSC-P·PjP°PjPë.

PŸPīPsCÍC-P± P·P°CÍC,PsCÍCáPIP°PSPSCĬ C,P° PrPsP·Pë.

PµCĤPµPīP°CĤP°C, P†PeCÍPrP¶PµPIP°^{B®} CÍP»C-Pr P·P°CÍC,PsCÍPsPICfPIP°C,Pë PīC-Pr
PSP°PīP»CĬPrPsPj P»C-PeP°CĤCĬ.

P°PsP·CáPIP°PSPSCĬ.

PkPµPsP±C...C-PrPSPµ C%oPsPrPµPSPSPµ PrPsPrP°PIP°PSPSCĬ PrPs CĤP°C†C-PsPSCf
C...P°CĤC†CfPIP°PSPSCĬ C%oPsPSP°PNēPjPµPSCēPµ 500 PjPi PeP°P»CHC†C-CH C,P° 400 PĥPh
PIC-C,P°PjC-PSCf D, P·P° PIPëPSCĬC,PePsPj PIPëPīP°PrPeC-PI
PīC-PīPµCĤPeP°P»CHC†C-C”PjC-C— (PrPëPI. CĤPsP·PrC-P» B«PhCÍPsP±P»PëPIPsCÍC,C-
P·P°CÍC,PsCÍCfPIP°PSPSCĬB»).

PµPsPīPµCĤPµPrP¶PµPSPSCĬ PeC-CÍC,PePsPIPëC... PīPsPrC-PNē Cf PrPsCĤPsCÍP»PëC... C-P·
PīC-P·PSCĤPsCĤ CÍC,P°PrC-C”CH P·P»PsCĬPeC-CÍPSPëC... PīCfC...P»PëPS, CĬPeC-
PīCĤP°P¶P°CĤC,CH PeC-CÍC,PePë. P µPePsPjPµPSPPrPsPIP°PSP° PrPsP·P° PīCĤPµPīP°CĤP°C,Cf
P†PeCÍPrP¶PµPIP°^{B®} CÍC,P°PSPsPIPëC,CH 120 PjPi, CĬPeCf PIPiPsPrCĬC,CH Cf
PIPëPiP»CĬPrC- PīC-PrCēPeC-CĤPSPsC— C-PSBĤ™ C”PeC†C-C— PsPrPëPS CĤP°P· PePsP¶PSC-
4 C,PëP¶PSC- PI PrC-P»CĬPSPeCf CÍC,PµPiPSP°, C†PµCĤPµPIPSPsC— CÍC,C-PSPePë P°P±Ps
PīP»PµC†P°.

P°C-PīP°PSC,PsPeP»C-C,PëPSPSP° PīCfC...P»PëPSP° PeC-CÍC,PsPe.

P µPePsPjPµPSPPrPsPIP°PSP° PrPsP·P° PīCĤPµPīP°CĤP°C,Cf P†PeCÍPrP¶PµPIP°^{B®} 120 PjPi,

B. PkPμ CΓC, CḡCfC€CfPIP°C, Pë.

B. P©PsP± CřPSPëPePSCřC, Pë PrPëCfPePsPjC,, PsCḡC, Cř PI PjC-CfC†C-
PIPIPμPrPμPSPSCf, C,, P»P°PePsPS CřP»C-Pr PSP°PiCḡC-C, Pë PrPs PeC-PjPSP°C, PSPSc—
C, PμPjPīPμCḡP°C, CřCḡPë (PrPs 25 B°C) C- PIPIPsPrPëC, Pë PīCḡPμPīP°CḡP°C,
PīPsPIC-P»CHPSPs.

B. P'PIPsPrPëC, Pë PIPμCfCḡ PIPjC-CfC, C,, P»P°PePsPSP°.

B. P''P»Cf PIPIPμPrPμPSPSCf PrPμPSPScfCřPjP°P±Cř
CḡPμPePsPjPμPSPřCřC''C, CHCfCf PīPsP»PeP° PeP°P»C-P±CḡCř 27.

B. PkPμ PIPIPsPrPëC, Pë PīPsP»PeCř Cř C,, P»P°PePsPS PīPsPIC, PsCḡPSPs.

P'CřPrCḡ-CfPePëPNë PSPμPIPëPePsCḡPëCfC, P°PSPëPNë P»C-PeP°CḡCfCḡPePëPNë P·P°CfC-P±
P°P±Ps PIC-PrC...PsPrPë PSPμPsP±C...C-PrPSPs CřC, PëP»C-P·CřPIP°C, Pë PIC-PrPīPsPIC-PrPSPs
PrPs PjC-CfC†PμPIPëC... PIPëPjPsPī.

P''C-C, Pë.

P'PμP·PīPμPeP° C, P° PμC,, PμPeC, PëPIPSC-CfC, Cḡ P·P°CfC, PsCfCřPIP°PSPSCf
PīCḡPμPīP°CḡP°C, Cř P†PeCfPrP¶PμPIP°^B PrC-C, CfPj (PIC-PePsPj PrPs 18 CḡPsPeC-PI) PSPμ
PsC†C-PSCḡPIP°P»PëCfCf, P·P° PIPëPSCfC, PePsPj PīC-PrP»C-C, PeC-PI P· PrPsP·CḡC-P»PsCḡ
PeC-CfC, PePsPIPScḡ CřPëCfC, PμPjPsCḡ (PIC-PePsPj PIC-Pr 12 PrPs 17 CḡPsPeC-PI), CfPeC-
PjP°CḡC, Cḡ PīC-PīP°PSC, PsPeP»C-C, PëPSPSCř PīCřC...P»PëPSCř PeC-CfC, PsPe.

PμCḡPμPīP°CḡP°C, P†PeCfPrP¶PμPIP°^B PSPμ CḡPμPePsPjPμPSPřCřC''C, CHCfCf PrP»Cf
P·P°CfC, PsCfCřPIP°PSPSCf PrC-C, CfPj (PIC-PePsPj PrPs 18 CḡPsPeC-PI), PsPeCḡC-Pj
PīC-PrP»C-C, PeC-PI P· PrPsP·CḡC-P»PsCḡ PeC-CfC, PePsPIPScḡ CřPëCfC, PμPjPsCḡ (PIC-PePsPj
PIC-Pr 12 PrPs 17 CḡPsPeC-PI), CfPeC- PjP°CḡC, Cḡ PīC-PīP°PSC, PsPeP»C-C, PëPSPSCř
PīCřC...P»PëPSCř PeC-CfC, PsPe (PrPëPI. CḡPsP·PrC-P» B«PḡCfPsP±P»PëPIPScfC, C-
P·P°CfC, PsCfCřPIP°PSPSCfB»).

P»C-PeCřPIP°PSPSCf PīC-PrP»C-C, PeC-PI P· PrPsP·CḡC-P»PsCḡ PeC-CfC, PePsPIPScḡ
CřPëCfC, PμPjPsCḡ, CfPeC- PjP°CḡC, Cḡ PīC-PīP°PSC, PsPeP»C-C, PëPSPSCř PīCřC...P»PëPSCř
PeC-CfC, PsPe, C°Ps PSPμ PjPsP¶Pμ P±CřC, Pë PIPëPrP°P»PμPSP° P°P±Ps CfPeC°Ps
C...C-CḡCřCḡPīC-C†PSP° CḡPμP·PμPeC†C-Cf, PSP°PNëC-PjPsPIC-CḡPSC-CëPμ,
PīCḡPëP·PIPμPrPμ PrPs C, CfP¶PePëC... PSP°CřP»C-PrPeC-PI: PrPsP·P° P°PSP°P»PsPīC-C†PSP°
PrPsP·C- PrP»Cf PrPsCḡPsCfP»PëC....

PμCḡPëPīPSC-C†PμPSPSCf P»C-PīP°PSPřCř RANK/RANK (RANKL) (P»C-PīP°PSPř
CḡPμC†PμPīC, PsCḡP° Bḡ P°PeC, PëPIP°C, PsCḡP° PSCřPeP»PμP°CḡPSPsPīPs C,, P°PeC, PsCḡP°
PeP°PīPīP° P') PI PrPsCřP»C-PrP¶PμPSPSCfC... PSP° C, PIP°CḡPëPSP°C...
PīPsC''PrPSCřPIP°P»PsCfCf P· PīCḡPëPīPSC-C†PμPSPSCfPj CḡPsCfC, Cř PeC-CfC, PsPe C-
PIC-PrCfCřC, PSC-CfC, Cḡ PīCḡPsCḡC-P·CřPIP°PSPSCf P·CřP±C-PI; C†C- P·PjC-PSPë P±CřP»Pë
C†P°CfC, PePsIPs PsP±PsCḡPsC, PSPëPjPë PīC-CřP»Cf PīCḡPëPīPëPSPμPSPSCf
PīCḡPëPīPSC-C†PμPSPSCf RANKL (PrPëPI. PīC-PrCḡPsP·PrC-P» B«P''P°PSC-
PrPsPeP»C-PSC-C†PSPëC... PrPsCřP»C-PrP¶PμPSCḡ P· P±PμP·PīPμPePëB»).

PμPμCḡPμPrPsP·CžPIP°PSPSCf.

P"PsCfPIC-Pr PiPμCfPμPrPsP·CfPIP°PSPSCf Π PI PeP»C-PSC-CfPSPëC...
PrPsCfP»C-PrP¶PμPSPSCfC... PIC-PrCfCfC,PSC-PNë. PμCfPμPiP°CfP°C, P†PeCfPrP¶PμPIP°B®
PIPIPPrPëPICfCf Π PI PeP»C-PSC-CfPSPëC... PrPsCfP»C-PrP¶PμPSPSCfC... PI PrPsP·P°C... PrPs
180 PjPi PePsP¶PSC- 4 C,PëP¶PSC- C,P° 120 PjPi PePsP¶PSC- 3 C,PëP¶PSC-.

PμPsP±C-CfPSC- CfPμP°PeCfC-C—.

P PμP·CfPjPμ PiCfPsC,,C-P»Cf P±PμP·PiPμPePë

P—P°PiP°P»CHfPSPëPNë PiCfPsC,,C-P»CHf P±PμP·PiPμPePë C" PsPrPSPsPjP°PSC-C,PSPëPj
PiCfPë CfCfC-C... P·P°C,PIPμCfPrP¶PμPSPëC... PiPsPeP°P·P°PSPSCfC... PrP»Cf
P»C-PeP°CfCfCHfPePsPiPs P·P°CfPsP±Cf P†PeCfPrP¶PμPIP°B®.

P"CfP¶Pμ CfP°CfC,Ps PiPsPIC-PrPsPjP»CfP»PsCfCf Π PiCfPs PiC-PiPsPeP°P»CHfCfC-C"PjC-Cf,
C%oPs PIPëPSPëPeP°P»P° PiC-CfP»Cf Π PIPμPrPμPSPSCf Π PiCfPμPiP°CfP°C,Cf
P†PeCfPrP¶PμPIP°B®, PiPsP»PsPIPSPëPj CfPëPSPsPj PiCfPsC,CfPiPsPj PiPμCfCëPëC... PrPIPsC...
C,PëP¶PSC-PI. P"C-PiPsPeP°P»CHfCfC-C"PjC-Cf PjPsPiP»P° P±CfC,Pë C,CfP¶PePsCf C-
CfPëPjPiC,PsPjP°C,PëCfPSPsCf (PrPëPI. PiC-PrCfPsP·PrC-P» B«PhPiPëCf PsPeCfPμPjPëC...
PiPsP±C-CfPSPëC... CfPμP°PeCfC-PNëB»). PïPe PiCfP°PIPëP»Ps, P·PSPëP¶PμPSPSCf
CfC-PIPSC-PI PeP°P»CHfCfC-Cf Cf CfPëCfPsPIP°C,CfC- PeCfPsPIC- PμC,,PμPeC,PëPIPsPs
CfCfCfPIP°P»PsCfCf CëP»CfC...PsPj PrPsPrP°PIP°PSPSCf Π PiCfPμPiP°CfP°C,C-PI
PeP°P»CHfCfC-Cf C,P° PIC-C,P°PjC-PSCf D. PkP°PNëCfP°CfC,C-CëPsCf PiPsP±C-CfPSPsCf
CfPμP°PeCfC-C"Cf PiCfPë P·P°CfC,PsCfCfPIP°PSPSC- PiCfPμPiP°CfP°C,Cf
P†PeCfPrP¶PμPIP°B® P±CfPI CfPePμP»PμC,PSPs-PjBf™ CfP·PsPIPëPNë P±C-P»CHf. Pj
PiP°CfC-C"PSC,C-PI, CfPeC- PsC,CfPëPjCfPIP°P»Pë PiCfPμPiP°CfP°C, P†PeCfPrP¶PμPIP°B®,
CfP°CfC,Ps PiPsPIC-PrPsPjP»CfP»PsCfCf Π PiCfPs PIPëPiP°PrPePë PsCfC,PμPsPSPμPeCfPsP·Cf
C%oPμP»PμPiPë (PrPëPI. CfPsP·PrC-P» B«PhCfPsP±P»PëPIPsCfC,C-
P·P°CfC,PsCfCfPIP°PSPSCfB» C,P° PiC-PrCfPsP·PrC-P» B«PhPiPëCf PsPeCfPμPjPëC...
PiPsP±C-CfPSPëC... CfPμP°PeCfC-PNëB»).

P—PIPμPrPμPSP° C,P°P±P»PëCfCf Π PiPsP±C-CfPSPëC... CfPμP°PeCfC-PNë

P»P»P°CfPëC,,C-PeP°CfC-Cf CfP°CfC,PsC,Pë PiPsP±C-CfPSPëC... CfPμP°PeCfC-PNë, PiCfPs
CfPeC- PiPsPIC-PrPsPjP»CfP»PsCfCf Cf CfPsC,PëCfCHfPsC... PeP»C-PSC-CfPSPëC...
PrPsCfP»C-PrP¶PμPSPSCfC... C,,P°P·Pë P†P†P† C,P° PrPIPsC... PeP»C-PSC-CfPSPëC...
PrPsCfP»C-PrP¶PμPSPSCfC... C,,P°P·Pë P†P†, P° C,P°PePsP¶ PiC-Pr CfP°Cf
PiC-CfP»CfCfPμC"CfC,CfP°CfC-PNëPSPsPiPs P·P°CfC,PsCfCfPIP°PSPSCf (PrPëPI.
C,P°P±P»PëCfCf 3): PrCfP¶Pμ CfP°CfC,Ps (≥ 1/10), CfP°CfC,Ps (≥ 1/100 Bf" < 1/10),
PSPμCfP°CfC,Ps (≥ 1/1000 Bf" < 1/100), CfC-PrPePs (≥ 1/10000 Bf" < 1/1000), PrCfP¶Pμ
CfC-PrPePs (< 1/10000) C,P° CfP°CfC,PsC,P° PSPμPIC-PrPsPjP° (PSPμPjPsP¶P»PëPIPs
PsCfC-PSPëC,Pë PSP° PsCfPSPsPIC- PSP°CfPIPsPëC... PrP°PSPëC...). P' PePsP¶PSC-PNë
PiCfCfPiC- P·P° CfP°CfC,PsC,PsCf PIPëPSPëPePSPμPSPSCf C,P° PeP»P°CfPsPj
CfPëCfC,PμPjPë PsCfPiP°PSC-PI PiPsP±C-CfPSC- CfPμP°PeCfC-C—
PiCfPμPrCfC,P°PIP»PμPSC- PI PiPsCfCfPrPeCf P·PjPμPSCëPμPSPSCf C,CfP¶PePsCfC,C-.

***PÿP°P±P»PëCfCf 3. PμPsP±C-CfPSC- CfPμP°PeCfC-C—, PiCfPs CfPeC-
PiPsPIC-PrPsPjP»CfP»PsCfCf Cf PiP°CfC-C"PSC,C-PI P· PiC-P·PSC-PjPë
CfC,P°PrC-CfPjPë P·P»PsCfPeC-CfPSPëC... PiCfC...P»PëPS, CfPeC-***

P»C-PeP°CḡCḡCḡPePëC... P·P°CḡPsP±C-PI.

PhPïPëCḡ PsPeCḡPμPjPëC... PïPsP±C-C±PSPëC... CḡPμP°PeCḡC-PMḡ

P“C-PiPsPeP°P»CHCḡC-C”PjC-Cḡ. P’PëC%ḡP° C±P°CḡC,PsC,P° CḡPsP·PIPëC,PeCḡ
PiC-PïPsPeP°P»CHCḡC-C”PjC-C— CḡPïPsCḡC,PμCḡC-PiP°P»P°CḡCḡ Cḡ PeP»C-PSC-C±PSPëC...
PrPsCḡP»C-PrPḡPμPSPSCḡC... PïPsPïPμCḡPμPrPḡPμPSPSCḡ PḡPḡ Cḡ PïP°CḡC-C”PSC,C-PI,
CḡPeC- PsC,CḡPëPjCḡPïP°P»Pë PrPμPSPsCḡCḡPjP°P±, PïPsCḡC-PIPSCḡPSPs P·
PïP°CḡC-C”PSC,P°PjPë, CḡPeC- PsC,CḡPëPjCḡPïP°P»Pë P·PsP»PμPrCḡPsPSPsPICḡ
PePëCḡP»PsC,Cḡ.

PḡP°PMḡPIPëC%ḡP° C±P°CḡC,PsC,P° CḡPsP·PIPëC,PeCḡ PiC-PïPsPeP°P»CHCḡC-C”PjC-C—
CḡPïPsCḡC,PμCḡC-PiP°P»P°CḡCḡ Cḡ C...PsPrC- PrPsCḡP»C-PrPḡPμPSPSCḡ C,,P°P·Pë PḡPḡPḡ Cḡ
PïP°CḡC-C”PSC,C-PI C-P· PjC-C”P»PsPjPSPsCḡ C...PIPSCḡPsP±PsCḡ. P’PëPïP°PrPePë
PiC-PïPsPeP°P»CHCḡC-C”PjC-C— C,CḡP°PïP»CḡP»PëCḡCḡ Cḡ 16,9 % C...PIPSCḡPëC..., CḡPeC-
PsC,CḡPëPjCḡPïP°P»Pë PïCḡPμPïP°CḡP°C, PḡPeCḡPrPḡPμPIP°^{Bḡ}, C,P° Cḡ
12,4 % PïP°CḡC-C”PSC,C-PI, CḡPeC- PsC,CḡPëPjCḡPïP°P»Pë P·PsP»PμPrCḡPsPSPsPICḡ
PePëCḡP»PsC,Cḡ. P—PSPëPḡPμPSPSCḡ CḡC-PIPSCḡ CḡPëCḡPsPIP°C,PePsPIPSPiPs
PeP°P»CHCḡC-Cḡ 3-PiPs CḡC,CḡPïPμPSCḡ PIPëPSPëPeP°P»Ps Cḡ 1,4 % C,P° 0,6 %
PïP°CḡC-C”PSC,C-PI, C%ḡPs P·P°CḡC,PsCḡPsPICḡPïP°P»Pë PïCḡPμPïP°CḡP°C,
PḡPeCḡPrPḡPμPIP°^{Bḡ} C,P° P·PsP»PμPrCḡPsPSPsPICḡ PePëCḡP»PsC,Cḡ PIC-PrPïPsPIC-PrPSPs, P°
4-PiPs CḡC,CḡPïPμPSCḡ Bḡ Cḡ 0,4 % C,P° 0,1 % PIC-PrPïPsPIC-PrPSPs.

P’ C,CḡCHPsC... PeP»C-PSC-C±PSPëC... PrPsCḡP»C-PrPḡPμPSPSCḡC... C,,P°P·Pë PḡPḡPḡ P·
P°PeC,PëPIPSPëPj PePsPSC,CḡPsP»PμPj P·P° CḡC±P°CḡC,Cḡ PïP°CḡC-C”PSC,C-PI P·
PiC-P·PSC-PjPë CḡC,P°PrC-CḡPjPë P·P»PsCḡPeC-CḡPSPëC... PiCḡC...P»PëPS P·
CḡCḡP°PḡPμPSPSCḡPj PeC-CḡC,PsPe PïCḡPs PiC-PïPsPeP°P»CHCḡC-C”PjC-Cḡ
PïPsPIC-PrPsPjP»CḡP»PsCḡCḡ Cḡ 9,6 % PïP°CḡC-C”PSC,C-PI, CḡPeC- PsC,CḡPëPjCḡPïP°P»Pë
PïCḡPμPïP°CḡP°C, PḡPeCḡPrPḡPμPIP°^{Bḡ}, C,P° Cḡ 5,0 % PïP°CḡC-C”PSC,C-PI, CḡPeC-
PsC,CḡPëPjCḡPïP°P»Pë P·PsP»PμPrCḡPsPSPsPICḡ PePëCḡP»PsC,Cḡ.

P—PSPëPḡPμPSPSCḡ 3 CḡC,CḡPïPμPSCḡ CḡC-PIPSC-PI CḡPëCḡPsPIP°C,PePsPIPSPiPs
PeP°P»CHCḡC-Cḡ PIPëPSPëPeP°P»Ps Cḡ 2,5 % PïP°CḡC-C”PSC,C-PI, CḡPeC-
PsC,CḡPëPjCḡPïP°P»Pë PïCḡPμPïP°CḡP°C, PḡPeCḡPrPḡPμPIP°^{Bḡ}, C,P° Cḡ 1,2 %
PïP°CḡC-C”PSC,C-PI, CḡPeC- PsC,CḡPëPjCḡPïP°P»Pë P·PsP»PμPrCḡPsPSPsPICḡ PePëCḡP»PsC,Cḡ.
P—PSPëPḡPμPSPSCḡ 4 CḡC,CḡPïPμPSCḡ CḡC-PIPSC-PI CḡPëCḡPsPIP°C,PePsPIPSPiPs
PeP°P»CHCḡC-Cḡ PIPëPSPëPeP°P»Ps Cḡ 0,6 % PïP°CḡC-C”PSC,C-PI, CḡPeC-
PsC,CḡPëPjCḡPïP°P»Pë PïCḡPμPïP°CḡP°C, PḡPeCḡPrPḡPμPIP°^{Bḡ}, C,P° Cḡ 0,2 %
PïP°CḡC-C”PSC,C-PI, CḡPeC- PsC,CḡPëPjCḡPïP°P»Pë P·PsP»PμPrCḡPsPSPsPICḡ PePëCḡP»PsC,Cḡ
(PrPëPI. CḡPsP·PrC-P» B«PhCḡPsP±P»PëPIPSCḡC, C- P·P°CḡC,PsCḡCḡPïP°PSPSCḡB»).

Pj PrPIPSC... PeP»C-PSC-C±PSPëC... PrPsCḡP»C-PrPḡPμPSPSCḡC... C,,P°P·Pë PḡPḡ P·
PsPrPSC-C”Cḡ PiCḡCḡPïPsCḡ CḡC±P°CḡPSPëPeC-PI PïCḡPs PiC-PïPsPeP°P»CHCḡC-C”PjC-Cḡ
PïPsPIC-PrPsPjP»CḡP»PsCḡCḡ Cḡ 5,7 % PïP°CḡC-C”PSC,C-PI C-P·
PiC-PiP°PSC,PsPeP»C-C,PëPSPSPsCḡ PiCḡC...P»PëPSPsCḡ PeC-CḡC,PsPe. P-PsPrPSP° P·
PïPsP±C-C±PSPëC... CḡPμP°PeCḡC-PMḡ PSPμ PIPIP°PḡP°P»P°CḡCḡ CḡPμCḡPMḡPsP·PSPsCḡ.

P’ PïPμCḡC-PsPr PiC-CḡP»CḡCḡPμC”CḡC,CḡP°CḡC-PMḡPSPsPiPs P·P°CḡC,PsCḡCḡPïP°PSPSCḡ
PïPsPIC-PrPsPjP»CḡP»PsCḡCḡ PïCḡPs C,CḡPḡPeCḡ CḡPëPjPiC,PsPjP°C,PëC±PSCḡ
PiC-PïPsPeP°P»CHCḡC-C”PjC-Cḡ (PIPëP»CḡC±P°CḡC±Pë P»PμC,P°P»CHPSC- PIPëPïP°PrPePë),

ПісЦьПє С†СНьPsPjC† P±C-P»СНьС€C-С†C,СНь PIPëPïP°PrPeC-PI PIPëPSPëPeP°P»Pë PI
PïPµCЦьC€C- C,PëP¶PSC- Pïc-С†P»C¶P PïPsC†P°C,PeC† P»C-PeC†PIP°PSPSC¶P. PµCЦьPëPeP»P°PrPë
PeP»C-PSC-C†PSPëC... PïcЦьPsC¶PIC-PI C,С¶P¶PePsC— С†PëPjPïc,PsPjP°C,PëC†PSPsC—
Pïc-PïPsPeP°P»СНьС†C-C”PjC-C— PIPeP»СНьС†P°P»Pë PïcЦьPsP»PsPSPïP°C†C-СНь
C-PSC,PµCЦьPIP°P»C† QT, C,PµC,P°PSC-СНь, С†C†PrPsPjPë C,P° PïPsCЦьC†C€PµPSPSC¶P
PïcС†PëC...C-C†PSPsPïPs С†C,P°PSC† (PIPeP»СНьС†P°СНьС†Pë PePsPjC†) (PrPëPI. ЦьPsP·PrC-P»
B«PñC†PsP±P»PëPIPсC†C,C- P·P°C†C,PsC†C†PIP°PSPSC¶PB»). PÿPëPjPïc,PsPjPë
Pïc-PïPsPeP°P»СНьС†C-C”PjC-C— PI PeP»C-PSC-C†PSPëC... PrPsC†P»C-PrP¶PµPSPSC¶C...
PIPeP»СНьС†P°P»Pë PïP°СНьPµC†C,PµP·C-СНь P°P±Ps ЦьPëPïc-PrPSC-С†C,СНь PjB¶™ С¶P·C-PI,
PjB¶™ С¶P·PsPIC- PïPsC†PjPëPeC†PIP°PSPSC¶P, С†PïP°P·PjPë C,P° PjB¶™ С¶P·PsPIC-
С†C†PrPsPjPë.

*PñC†C,PµPsPSPµPeCЦьPsP· C%oPµP»PµPïPë (PñPќP©). P' PeP»C-PSC-C†PSPëC...
PrPsC†P»C-PrP¶PµPSPSC¶C... C†P°C†C,PsC,P° PñPќP© P±C†P»P° PIPëC%oPsCñ PïcЦьPë
P±C-P»СНьС€ C,СНьPëPIP°P»PsPjC† PIPïP»PëPIC- PïcЦьPµPïP°СНьP°C,C†; PñPќP© C,P°PePsP¶
PrC-P°PïPSPсC†C,C†PIP°PIC†C¶P Pïc-С†P»C¶P PïcЦьPëPïPëPSPµPSPSC¶P P»C-PeC†PIP°PSPSC¶P
PïcЦьPµPïP°СНьP°C,PsPj P†PeC†PrP¶PµPIP°^{B®}, PïcЦьPë C†СНьPsPjC† P±C-P»СНьС€C-С†C,СНь
PIPëPïP°PrPeC-PI PIPëPSPëPeP°P»P° PïcЦьPsC,С¶PïPsPj 5 PjC-С†C¶C†C-PI Pïc-С†P»C¶P
PIPIPµPrPµPSPSC¶P PsC†C,P°PSPSCñPsC— PrPsP·Pë. PµP°C†C-C”PSC,Pë P· PñPќP© P°P±Ps
PsC†C,PµPsPjC-C”P»C-C,PsPj C%oPµP»PµPïPë PI P°PSP°PjPSPµP·C-, P°PeC,PëPIPSPëPjPë
P·P°C...PIPсCЦьPIP°PSPSC¶PjPë P·C†P±C-PI P°P±Ps C%oPµP»PµPï, С¶PeC-
PIPëPjP°PïP°СНьC,СНь C...C-СНьC†CЦьPïc-C†PSPsPïPs PIC,СНьC†C†P°PSPSC¶P, ЦьP°PSP°PjPë
Pïc-С†P»C¶P С†C,PsPjP°C,PsP»PsPïc-C†PSPsPïPs/C...C-СНьC†CЦьPïc-C†PSPsPïPs
PIC,СНьC†C†P°PSPSC¶P PI ЦьPsC,PsPIC-PMë PïPsCЦьPsP¶PSPëPSC-, С¶PeC- PSPµ P·P°P¶PëP»Pë,
P°P±Ps PïP°C†C-C”PSC,Pë P· P±C†PrСНь-С¶PePëPjPë P·P°PïP»P°PSPsPIP°PSPëPjPë
C-PSPïP°P·PëPIPSPëPjPë С†C,PsPjP°C,PsP»PsPïc-C†PSPëPjPë PIC,СНьC†C†P°PSPSC¶PjPë
PIPëPeP»СНьС†P°P»PëC†C¶P· PeP»C-PSC-C†PSPëC... PrPsC†P»C-PrP¶PµPSCñ.*

P'С-P»СНьС€ PIPëC†PsPeP° C†P°C†C,PsC,P° PIPëPSPëPePSPµPSPSC¶P PñPќP©
С†PïPsC†C,PµCЦьC-PïP°P»P°C†C¶P C† C...PsPrC- PeP»C-PSC-C†PSPëC... PrPsC†P»C-PrP¶PµPSCñ
PïPsPïPµCЦьPµPrP¶PµPSPSC¶P PñPµ C† PïP°C†C-C”PSC,C-PI, С¶PeC- PsC,СНьPëPjC†PIP°P»Pë
PrPµPSPсC†C†PjP°P±, PïPsCЦьC-PIPSC¶PSPs C-P· P·PsP»PµPrCЦьPsPSPsPïPsCñ
PePëC†P»PsC,PsCñ. PќP°PñPIPëC%oP° C†P°C†C,PsC,P° PIPëPSPëPePSPµPSPSC¶P PñPќP©
P±C†P»P° C† PrPsC†P»C-PrP¶PµPSPSC- C,,P°P·Pë P†P†P† C† PïP°C†C-C”PSC,C-PI P·
PjC-C”P»PsPjPSPсCñ C...PIPсCЦьPsP±PsCñ. Pj PïPsPrPIC-PMëPSPs С†P»C-Pïc-PMë C,,P°P·C-
P»C-PeC†PIP°PSPSC¶P C†СНьPsPïPs PrPsC†P»C-PrP¶PµPSPSC¶P PñPќP© P±C†PI
Pïc-PrC,PIPµCЦьPrP¶PµPSPëPMë C† 5,9 % PïP°C†C-C”PSC,C-PI, С¶PeC- PsC,СНьPëPjC†PIP°P»Pë
PïcЦьPµPïP°СНьP°C, P†PeC†PrP¶PµPIP°^{B®} (PjPµPrC-P°PSP° P·P°C†C,PsC†C†PIP°PSPSC¶P
19,4 PjC-С†C¶C†C¶P; PrC-P°PïP°P·PsPS: 1B¶”52), C,P° C† 3,2 % PïP°C†C-C”PSC,C-PI, С¶PeC-
PsC,СНьPëPjC†PIP°P»Pë P·PsP»PµPrCЦьPsPSPsPIC† PePëC†P»PsC,C†. PќP° PjPsPjPµPSC,
P·P°PIPµCЦьC€PµPSPSC¶P PïPsPrPIC-PMëPSPs С†P»C-PïPsC— C,,P°P·Pë C,PµCЦьP°Pïc-C—
PrPsC†P»C-PrP¶PµPSPSC¶P С†PePsCЦьPëPïPsPIP°PSP° PrP»C¶P PïPsPeP°P·PSPëPeP°
PïP°C†C-C”PSC,-СНьC-Pe C†P°C†C,PsC,P° PIPëPSPëPePSPµPSPSC¶P
Pïc-PrC,PIPµCЦьPrP¶PµPSPëC... PIPëPïP°PrPeC-PI PñPќP© C† PïcC†Pïc- PïcЦьPµPïP°СНьP°C,C†
P†PeC†PrP¶PµPIP°^{B®} (PjPµPrC-P°PSP° P·P°C†C,PsC†C†PIP°PSPSC¶P 19,4 PjC-С†C¶C†C¶P;
PrC-P°PïP°P·PsPS: 1B¶”52) С†C,P°PSPsPIPëP»P° 2,0 PSP° 100 PïP°C†C-C”PSC,Ps-СНьPsPeC-PI
Pïc-Pr C†P°C† PïPµCЦьC€PsPïPs ЦьPsPeC† P»C-PeC†PIP°PSPSC¶P, 5,0 B¶” PrCЦьC†PïPsPïPs
СНьPsPeC† C,P° 4,5 C† PSP°C†C,C†PïPSC- СНьPsPePë. PñPµPrC-P°PSP° C†P°C†C† PrPs
PIPëPSPëPePSPµPSPSC¶P PñPќP© С†C,P°PSPsPIPëP»P° 18,7 PjC-С†C¶C†C¶P
(PrC-P°PïP°P·PsPS: 1B¶”44).

P' PīPμCḡPIPēPSPSPēC... C,,P°P·P°C... P»C-PeCfPIP°PSPSCḡ C,CḡCḡPsC... P°PeC,PēPIPSPs
PePsPSC,CḡPsP»CḡPsPIP°PSPēC... PeP»C-PSC-CḡPSPēC... PrPsCfP»C-PrPḡPμPSCḡ C,,P°P·Pē
P†P† P·P° CfCḡP°CfC,Cḡ PīP°C†C-C" PSC,C-PI P· PīC-P·PSCḡPsCḡ CfC,P°PrC-C" Cḡ
P·P»PsCḡPeC-CfPSPēC... PīCfC...P»PēPS P· CḡCḡP°PḡPμPSPSCḡPj PeC-CfC,PsPe PḡPḡP©
P±CfPI PīC-PrC,PIPμCḡPrPḡPμPSPēPḡ Cḡ 1,8 % C...PIPSCḡPēC..., CḡPeC-
PsC,CḡPēPjCfPIP°P»Pē PīCḡPμPīP°CḡP°C, P†PeCfPrPḡPμPIP°^B (CfPμCḡPμPrPSC-Pḡ PIPiP»PēPI
12 PjC-CfCḡC†C-PI; PrC-P°PīP°P·PsPS: 0,1Bḡ"40,5), C,P° Cḡ 1,3 % C...PIPSCḡPēC..., CḡPeC-
PsC,CḡPēPjCfPIP°P»Pē P·PsP»PμPrCḡPsPSPsPICḡ PePēCfP»PsC,Cḡ. PḡP»C-PSC-CḡPSC-
C...P°CḡP°PeC,PμCḡPēCfC,PēPePē C†PēC... PIPēPīP°PrPeC-PI P±CfP»Pē
P°PSP°P»PsPīC-CḡPSPēPjPē Cḡ PīCḡCfPīP°C... P»C-PeCfPIP°PSPSCḡ. Pj P±C-P»CḡCēPsCfC,C-
PīP°C†C-C" PSC,C-PI P· PīC-PrC,PIPμCḡPrPḡPμPSPēPj PḡPḡP© (81 % PI PsP±PsC...
PīCḡCfPīP°C... P»C-PeCfPIP°PSPSCḡ) PI P°PSP°PjPSPμP·C- P±CfP»Ps PIPēPrP°P»PμPSPSCḡ
P·CfP±C-PI, PīPsPīP°PSP° PīC-PīC-C" PSP° CḡPsC,PsPIPSC— PīPsCḡPsPḡPSPēPSPē C,P°/P°P±Ps
PICfC,P°PSPsPIP»PμPSPSCḡ P·CfP±PSPēC... PīCḡPsC,PμP·C-PI. P' C-P»CḡCēC-CfC,Cḡ
PīP°C†C-C" PSC,C-PI PsC,CḡPēPjCfPIP°P»Pē P°P±Ps PIPḡPμ PīCḡPsPḡCēP»Pē
C...C-PjC-PsC,PμCḡP°PīC-Cḡ.

P"PsCfP»C-PrPḡPμPSPSCḡ P·P° CḡCḡP°CfC,Cḡ PīP°C†C-C" PSC,C-PI P· CḡP°PePsPj
PjPsP»PsCḡPSPsC— P·P°P»PsP·Pē P°P±Ps PīCḡPsCfC,P°C,Pē PIPeP»CḡCḡP°P»Pē
CḡPsP·CēPēCḡPμPSCḡ C,,P°P·Cḡ P»C-PeCfPIP°PSPSCḡ PīCḡPμPīP°CḡP°C,PsPj
P†PeCfPrPḡPμPIP°^B (CfPμCḡPμPrPSC-Pḡ P·P°PīP°P»CḡPSPēPḡ PIPiP»PēPI
14,9 PjC-CfCḡC†Cḡ; PrC-P°PīP°P·PsPS: 0,1Bḡ"67,2). PḡPḡP© P±CfPI
PīC-PrC,PIPμCḡPrPḡPμPSPēPḡ Cḡ 6,9 % PīP°C†C-C" PSC,C-PI P· CḡP°PePsPj PjPsP»PsCḡPSPsC—
P·P°P»PsP·Pē P°P±Ps PīCḡPsCfC,P°C,Pē PīC-Pr CḡP°Cf CḡPsP·CēPēCḡPμPSPsC— C,,P°P·Pē
P»C-PeCfPIP°PSPSCḡ.

PŸPePsCḡPēPīPsPIP°PSP° PrP»Cḡ PīPsPeP°P·PSPēPeP° PīP°C†C-C" PSC,-CḡC-Pe CḡP°CfC,PsC,P°
PIPēPSPēPePSPμPSPSCḡ PīC-PrC,PIPμCḡPrPḡPμPSPēC... PIPēPīP°PrPeC-PI PḡPḡP©
CfC,P°PSPsPIPēP»P° 1,1 PSP° 100 PīP°C†C-C" PSC,Ps-CḡPsPeC-PI PīC-Pr CḡP°Cf PīPμCḡCēPsPīPs
CḡPsPeCḡ P»C-PeCfPIP°PSPSCḡ, 3,7 Bḡ" PīC-Pr CḡP°Cf PrCḡCfPīPsPīPs CḡPsPeCḡ C,P° 4,6 Bḡ"
Cḡ PīPsPrP°P»CḡCēC- CḡPsPePē. PḡPμPrC-P°PSP° CḡP°CfCḡ PrPs PIPēPSPēPePSPμPSPSCḡ
PḡPḡP© CfC,P°PSPsPIPēP»P° 20,6 PjC-CfCḡC†Cḡ (PrC-P°PīP°P·PsPS: 4Bḡ"53).

P"°PSC- PSPμCḡP°PSPPrPsPjC-P·PsPIP°PSPsPīPs CḡPμC,CḡPsCfPīPμPeC,PēPIPSPsPīPs
PsP±CfPμCḡPIP°C†C-PḡPSPsPīPs PrPsCfP»C-PrPḡPμPSPSCḡ P·P° CḡCḡP°CfC,Cḡ
2877 PīP°C†C-C" PSC,C-PI P·C- P·P»PsCḡPeC-CfPSPēPjPē PīCḡC...P»PēPSP°PjPē, CḡPeC-
PsC,CḡPēPjCfPIP°P»Pē P»C-PeCfPIP°PSPSCḡ PīCḡPμPīP°CḡP°C,PsPj P†PeCfPrPḡPμPIP°^B
P°P±Ps P·PsP»PμPrCḡPsPSPsPīPsCḡ PePēCfP»PsC,PsCḡ Cḡ PēPIPμC†C-C—, P"°PSC-C— C,P°
PḡPsCḡPIPμPīC—, PīPsPeP°P·P°P»Pē, CḡPs 5-CḡC-CḡPSP° CḡP°CfC,PsC,P°
PIPēPSPēPePSPμPSPSCḡ PīC-PrC,PIPμCḡPrPḡPμPSPsPīPs PḡPḡP© CfC,P°PSPsPIPēP»P° 5,7 %
(95 % P"Pt: 4,4, 7,3; PjPμPrC-P°PSP° CḡP°CfCḡ CfPīPsCfC,PμCḡPμPḡPμPSPSCḡ:
20 PjC-CfCḡC†C-PI [PrC-P°PīP°P·PsPS 0,2Bḡ"60]) Cḡ PePsPīPsCḡC,- PīP°C†C-C" PSC,C-PI,
CḡPeC- PsC,CḡPēPjCfPIP°P»Pē P†PeCfPrPḡPμPIP°^B, C- 1,4 % (95 % P"Pt: 0,8, 2,3;
PjPμPrC-P°PSP° CḡP°CfCḡ CfPīPsCfC,PμCḡPμPḡPμPSPSCḡ: 13 PjC-CfCḡC†C-PI
[PrC-P°PīP°P·PsPS 0,1Bḡ"60]) PI PsPeCḡPμPjC-Pḡ PePsPīPsCḡC,- P·P°CfC,PsCfCfPIP°PSPSCḡ
P·PsP»PμPrCḡPsPSPsPīPsC— PePēCfP»PsC,Pē. PḡPḡ™ CḡC,PēCḡC-CḡPSP° CḡP°CfC,PsC,P°
PIPēPSPēPePSPμPSPSCḡ PḡPḡP© Cḡ PīP°C†C-C" PSC,C-PI, CḡPeC- PīPμCḡPμPḡCēP»Pē PSP°
P»C-PeCfPIP°PSPSCḡ P†PeCfPrPḡPμPIP°^B PīC-CfP»Cḡ PīCḡPēPḡPsPjCḡ
P·PsP»PμPrCḡPsPSPsPīPsC— PePēCfP»PsC,Pē, PrPsCḡC-PIPSCḡPIP°P»P° 6,6 % (95 % P"Pt: 4,2,
10,0; PjPμPrC-P°PSP° CḡP°CfCḡ CfPīPsCfC,PμCḡPμPḡPμPSPSCḡ: 13 PjC-CfCḡC†C-PI
[PrC-P°PīP°P·PsPS 0,2Bḡ"60]).

PJ PeP»C-PSC-C#PSPsPjCf PrPsCfP»C-PrP¶PµPSPSC- C,,P°P·Pë P†P†P† C† PïP°C†C-C"psc,c-pi P·PSPµPjPµC,P°CfC,P°C,PëC#PSPëPj C¶P°PePsPj PïPµC¶PµPrPjC-C...C†C¶PsPIPSC— P·P°P»PsP·Pë (PïP°C†C-C"psc,Pë, PrP»C¶ C¶PePëC... PïC¶PµPïP°C¶P°C, P†PeCfPrP¶PµPIP°^B PSPµ PïPsPeP°P·P°PSPëPñ P·P°CfC,PsCfC†PIP°PSPSC¶) P· C,C¶PëPIP°P»PsC¶ PµPeCfPïPsP·PëC†C-C" C¶ PïC¶PsC,C¶PïPsPj PïPµC¶C-PsPrC† PrPs 7 C¶PsPeC-pi P»C-PeC†PIP°PSPSC¶ C†PePsC¶PëPïPsPIP°PSP° PrP»C¶ PïPsPeP°P·PSPëPeP° PïP°C†C-C"psc,-C¶C-Pe C#P°CfC,PsC,P° PïC-PrC,PIPµC¶PrP¶PµPSPsPiPs P¶P¶P° C†C,P°PSPsPIPëP»P° 1,1 PSP° 100 PïP°C†C-C"psc,Ps-C¶PsPeC-pi PïC¶PsC,C¶PïPsPj PïPµC¶C¶PsPiPs C¶PsPeC† P»C-PeC†PIP°PSPSC¶, 3,0 B¶" PïC¶PsC,C¶PïPsPj PrC¶C†PiPsPiPs C¶PsPeC† C,P° 7,1B¶" C† PSP°CfC,C†PïPSC- C¶PsPePë.

PJ PrPsPIPïPsCfC,C¶PsPePsPIPjCf PIC-PrPeC¶PëC,PsPjC† PeP»C-PSC-C#PSPsPjCf PrPsCfP»C-PrP¶PµPSPSC- C,,P°P·Pë II C† PïP°C†C-C"psc,c-pi C-P· PïC-PïP°PSC,PsPeP»C-C,PëPSPSPsC¶ PïC†C...P»PëPSPsC¶ PeC-CfC,PsPe (PrPsCfP»C-PrP¶PµPSPSC¶ 6, PrPëPI. PïC-PrC¶PsP·PrC-P» B«P°C¶PjP°PePsPrPëPSP°PjC-PeP°B») P¶P¶P° P±C†PI PïC-PrC,PIPµC¶PrP¶PµPSPëPñ C† 6,8 % PïP°C†C-C"psc,c-pi, P·PsPeC¶PµPjP° PI PsPrPSPsPiPs PïC-PrP»C-C,PeP° (PjPµPrC-P°PSP° PeC-P»C¶PePsCfC,C- PrPsP·: 34; PrC-P°PïP°P·PsPS: 4B¶"116). P¶P° PjPsPjPµPSC, P·P°PIPµC¶C¶PµPSPSC¶ PrPsCfP»C-PrP¶PµPSPSC¶ PjPµPrC-P°PSP° C,C¶PëPIP°P»PsCfC,C- C†C#P°CfC,C- PI PrPsCfP»C-PrP¶PµPSPSC-, P·PsPeC¶PµPjP° C† C,,P°P·C- PïPsPrP°P»C¶C¶PsPiPs C†PïPsCfC,PµC¶PµP¶PµPSPSC¶, C†C,P°PSPsPIPëP»P° 60,9 PjC-CfC¶C†C¶ (PrC-P°PïP°P·PsPS: 0B¶"112,6). P¶PePsC¶PëPïPsPIP°PSP° PrP»C¶ PïPsPeP°P·PSPëPeP° PïP°C†C-C"psc,-C¶C-Pe P·P°PïP°P»C¶PSP° C#P°CfC,PsC,P° PïC-PrC,PIPµC¶PrP¶PµPSPsPiPs P¶P¶P° C†C,P°PSPsPIPëP»P° 1,5 PSP° 100 PïP°C†C-C"psc,Ps-C¶PsPeC-pi (0,2 PSP° 100 PïP°C†C-C"psc,Ps-C¶PsPeC-pi PïC¶PsC,C¶PïPsPj PïPµC¶C¶PsPiPs C¶PsPeC† P»C-PeC†PIP°PSPSC¶, 1,5 B¶" PïC¶PsC,C¶PïPsPj PrC¶C†PiPsPiPs C¶PsPeC†, 1,8 B¶" C,C¶PµC,C¶PsPiPs C¶PsPeC†, 2,1 B¶" C#PµC,PIPµC¶C,PsPiPs C¶PsPeC†, 1,4 B¶" PïC¶PsC,C¶PïPsPj PïB¶" C¶C,PsPiPs C¶PsPeC† C,P° 2,2 B¶" C† PïPsPrP°P»C¶C¶C- C¶PsPePë). P¶PµPrC-P°PSP° C#P°CfC† PrPs PIPëPSPëPePSPµPSPSC¶ P¶P¶P° C†C,P°PSPsPIPëP»P° 41 PjC-CfC¶C†C¶ (PrC-P°PïP°P·PsPS: 11B¶"96).

P°PsCfP»C-PrP¶PµPSPSC¶ 7 P±C†P»Ps PïC¶PsPIPµPrPµPSPs PrP»C¶ PïC¶PsPrPsPIP¶PµPSPSC¶ C†PïPsCfC,PµC¶PµP¶PµPSPSC¶ PïC¶PsC,C¶PïPsPj PrPsPrP°C,PePsPIPëC... 5 P°P±Ps P±C-P»C¶C¶Pµ C¶PsPeC-pi P·P° PïP°C†C-C"psc,P°PjPë P· PïC-PïP°PSC,PsPeP»C-C,PëPSPSPsC¶ PïC†C...P»PëPSPsC¶ PeC-CfC,PsPe, C¶PeC- PsC,C¶PëPjC†PIP°P»Pë P»C-PeC†PIP°PSPSC¶ PI C¶P°PjPeP°C... PrPsCfP»C-PrP¶PµPSPSC¶ 6. P¶P¶P° P±C†P»Ps P·P°C¶PµC" C†C,C¶PsPIP°PSPs C† 6 PïP°C†C-C"psc,c-pi (11,8 %) P· 51 PïP°C†C-C"psc,P°, C%Ps PsC,C¶PëPjC†PIP°P»Pë P»C-PeC†PIP°PSPSC¶, PI C¶PePsPjC† C†PµC¶PµPrPSC¶ P·P°PïP°P»C¶PSP° PeC-P»C¶PeC-CfC,C¶ PrPµPSPsCfC†PjP°P±C† C†C,P°PSPsPIPëP»P° 42 PrPsP·Pë. P¶C¶Pë P· C†PëC... PIPëPïP°PrPeC-pi P¶P¶P° P±C†P»Pë PjPµPrPëC#PSPs PïC-PrC,PIPµC¶PrP¶PµPSC-.

P PµP°PeC†C-C— PïC-PrPIPëC%PµPSPsC— C#CzC,P»PëPIPSCfC,C-, PïPsPïB¶" C¶P·P°PSC- P· PïC¶PëPñPsPjPsPj PïC¶PµPïP°C¶P°C,Cz. P' C†PjPsPIP°C...
PïC-CfP»C¶C¶PµC" C†C,C¶P°C†C-PñPSPsPiPs P·P°CfC,PsCfC†PIP°PSPSC¶ C† PïP°C†C-C"psc,c-pi, C¶PeC- PsC,C¶PëPjC†PIP°P»Pë PïC¶PµPïP°C¶P°C, P†PeCfPrP¶PµPIP°^B, PïPsPIC-PrPsPjP»C¶P»PsCfC¶ PïC¶Ps PIPëPSPëPePSPµPSPSC¶ PïC-PrPIPëC%PµPSPsC— C#C†C,P»PëPIPSCfC,C-, PIPeP»C¶C#P°C¶C#Pë C¶C-PrPeC-CfPSC- PIPëPïP°PrPePë P°PSP°C,,C-P»P°PeC,PëC#PSPëC... C¶PµP°PeC†C-Pñ.

P¶C,PëPïPsPIC- PïPµC¶PµP»PsPjPë C†C,PµPiPSP°. P' PïC¶PsPiC¶P°PjC- PeP»C-PSC-C#PSPsPiPs PrPsCfP»C-PrP¶PµPSPSC¶ C† PïP°C†C-C"psc,c-pi, C¶PeC- PsC,C¶PëPjC†PIP°P»Pë

PJ PiP°C†C-C" PSC, C-PI C-P. PiC-PiP°PSC, PsPeP»C-C, PëPSPSPsCĤ PiC†C...P»PëPSPsCĤ
PeC-C†C, PePë C†P°C†C, PsC, P° PSPsPIPëC... P·P»PsCĪPeC-C†PSPëC...
PSPsPIPSc†C, PIPScĤPμPSCĤ, CĪPe C† PeC-C†C, PeP°C..., C, P°Pe C- PiPsP·P° PSPëPjPë,
C†C, P°PSPsPIPëP»P° 3,8 % (20/526) C† PrPsC†P»C-PrP¶PμPSPSC- 6. PJ PiPsPrP°P»CĤC€PsPjC†
PrPsC†P»C-PrP¶PμPSPSC- 7 C†P°C†C, PsC, P° C†C, P°PSPsPIPëP»P° 11,8 % (6/51) C†
PiP°C†C-C" PSC, C-PI, CĪPeC- PsC, CĤPëPjC†PIP°P»Pë PrPμPSPsC†C†PjP°P±.

*P»PëC€P°C" PiPsPrC-P±PSC- PIPëC†PëPiP°PSPSCĪ, PIPëPeP»PëPeP°PSC-
P»C-PeP°CĤC†CĤPePëPj P·P°C†PsP±PsPj. P»PëC€P°C" PiPsPrC-P±PSC- PIPëC†PëPiP°PSPSCĪ,
PIPëPeP»PëPeP°PSC- P»C-PeP°CĤC†CĤPePëPj P·P°C†PsP±PsPj (PSP°PiCĤPëPeP»P°Pr
CĤPμP°PeC†C-C—, PiPsPrC-P±PSC- PrPs PiP»P°C†PePsPiPs P»PëC€P°CĪ),
PIC-PrPjC-C†P°P»PëC†CĤ C† PiP°C†C-C" PSC, C-PI C† PiPsC†C, PjP°CĤPePμC, PëPSPiPsPIPëP№
PiPμCĤC-PsPr.*

P" C-C, Pë

PμCĤPμPiP°CĤP°C, P†PeC†PrP¶PμPIP°^{B®} PIPëPIC†P°PIC†CĪ C† PIC-PrPeCĤPëC, PsPjC†
PrPsC†P»C-PrP¶PμPSPSC- P·P° C†C†P°C†C, CĤ 28 PiC-PrP»C-C, PeC-PI P· PrPsP·CĤC-P»PsCĤ
PeC-C†C, PePsPIPScĤ C†PëC†C, PμPjPsCĤ, CĪPeC- PjP°P»Pë PiC-PiP°PSC, PsPeP»C-C, PëPSPSC†
PiC†C...P»PëPSC† PeC-C†C, PsPe. PkP° PsC†PSPsPIC- C†PëC... PsP±PjPμP¶PμPSPëC...
PrP°PSPëC... PiCĤPsC,, C-P»CĤ PiPsP±C-C†PSPëC... CĤPμP°PeC†C-P№ PIPëCĪPIPëPIC†CĪ
P°PSP°P»PsPiC-C†PSPëPj C, P°PePsPjC† C† PrPsCĤPsC†P»PëC....

PJ PiC-C†P»CĪCĤPμC" C†C, CĤP°C†C-P№PSPëP№ PiPμCĤC-PsPr PiPsPIC-PrPsPjP»CĪP»PsC†CĪ
PiCĤPs PeP»C-PSC-C†PSPs P·PSP°C†C†C%oC† PiC-PiPμCĤPeP°P»CĤC†C-C" PjC-CĤ PiC-C†P»CĪ
PiCĤPëPiPëPSPμPSPSCĪ P»C-PeC†PIP°PSPSCĪ C† PrC-C, PμP№ (PrPëPI. CĤPsP·PrC-P»
B«PĤC†PsP±P»PëPIPsC†C, C- P·P°C†C, PsC†C†PIP°PSPSCĪB»).

P†PSC€C- PsC†PsP±P»PëPIC- PiCĤC†PiPë PiP°C†C-C" PSC, C-PI

PkPëCĤPePsPIP° PSPμPrPsC†C, P°C, PSC-C†C, CĤ

P' PeP»C-PSC-C†PSPsPjC† PrPsC†P»C-PrP¶PμPSPSC- C† PiP°C†C-C" PSC, C-PI P±PμP·
PiC-P·PSCĤPsC— C†C, P°PrC-C— CĤP°PeC† P· PSPëCĤPePsPIPScĤ
PSPμPrPsC†C, P°C, PSC-C†C, CĤ C, CĪP¶PePsPiPs C†C, C†PiPμPSCĪ (PeP»C-CĤPμPSC†
PeCĤPμP°C, PëPSC-PSC† < 30 PjP»/C...PI) P°P±Ps PiP°C†C-C" PSC, C-PI PSP° PrC-P°P»C-P·C-
C†PiPsC†C, PμCĤC-PiP°PIC†CĪ P±C-P»CĤC€ PIPëC†PsPePëP№ CĤPëP·PëPe CĤPsP·PIPëC, PeC†
PiC-PiPsPeP°P»CĤC†C-C" PjC-C— P·P° PIC-PrC†C†C, PSPsC†C, C- PiCĤPëP№PsPjC†
PeP°P»CĤC†C-C" PIPëC... PrPsP±P°PIPsPe. P PëP·PëPe CĤPsP·PIPëC, PeC†
PiC-PiPsPeP°P»CĤC†C-C" PjC-C— PiC-Pr C†P°C† P»C-PeC†PIP°PSPSCĪ PiCĤPμPiP°CĤP°C, PsPj
P†PeC†PrP¶PμPIP°^{B®} P·CĤPsC†C, P°C" P·C- P·P±C-P»CĤC€PμPSPSCĪPj C†C, C†PiPμPSCĪ
PSPëCĤPePsPIPSc— PSPμPrPsC†C, P°C, PSPsC†C, C-. P' PeP»C-PSC-C†PSPsPjC†
PrPsC†P»C-PrP¶PμPSPSC- P·P° C†C†P°C†C, CĤ PiP°C†C-C" PSC, C-PI P±PμP· PiC-P·PSCĤPsC—
C†C, P°PrC-C— CĤP°PeC† C† 19 % PiP°C†C-C" PSC, C-PI P· PSPëCĤPePsPIPScĤ
PSPμPrPsC†C, P°C, PSC-C†C, CĤ C, CĪP¶PePsPiPs C†C, C†PiPμPSCĪ (PeP»C-CĤPμPSC†
PeCĤPμP°C, PëPSC-PSC† < 30 PjP»/C...PI) C, P° C† 63 % PiP°C†C-C" PSC, C-PI, CĪPeC- P±C†P»Pë
PSP° PiPμPjPsPrC-P°P»C-P·C-, PIPëPSPëPeP°P»P° PiC-PiPsPeP°P»CĤC†C-C" PjC-CĪ,
PSPμP·PIP°P¶P°CĤC†Pë PSP° PiCĤPëP№PsPj PeP°P»CĤC†C-C" PIPëC... PrPsP±P°PIPsPe.
P—P°PiP°P»CĤPSP° C†P°C†C, PsC, P° PIPëPSPëPePSPμPSPSCĪ PeP»C-PSC-C†PSPs
C†C†C, C, C" PIPsC— PiC-PiPsPeP°P»CĤC†C-C" PjC-C— C†C, P°PSPsPIPëP»P° 9 %.

PŸC†PiC†C, PSC- PiC-PrP№PsPjPë CĤC-PIPSC-PI PiP°CĤP°C, PëCĤPμPsC—PrPSPsPiPs

PiPsCḡPjPsPSCr C, P°PePsPḡ CÍPíPsCÍC, PμCḡC-PiP°P»PëCÍCḡ Cí PíP°C†C-C" PSC, C-PI, CḡPeC-
PsC, CḡPëPjCfPIP°P»Pë PíCḡPμPíP°CḡP°C, P†PeCÍP†PḡPμPIP°B® C- PjP°P»Pë PSPëCḡPePsPICr
PSPμPrPsCÍC, P°C, PSC-CÍC, Cḡ C, CḡPḡPePsPiPs CÍC, CíPíPμPSCḡ P°P±Ps P±CfP»Pë PSP°
PrC-P°P»C-P·C-. PḡPsPSC-C, PsCḡPëPSPi CḡC-PI PSC-PI PeP°P»CḡC†C-Cḡ C, P°
PrPsCÍC, P°C, PSC" PSP°PrC...PsPrPḡPμPSPSCḡ PeP°P»CḡC†C-Cḡ C, P° PIC-C, P°PjC-PSCr D
PsCÍPsP±P»PëPIPs PSPμPsP±C...C-PrPSC- PrP»Cḡ PíP°C†C-C" PSC, C-PI P· PSPëCḡPePsPIPsCḡ
PSPμPrPsCÍC, P°C, PSC-CÍC, Cḡ (PrPëPI. CḡPsP·PrC-P» B«PḡCÍPsP±P»PëPIPsCÍC, C-
P·P°CÍC, PsCÍCfPIP°PSPSCḡB»).

PμPsPIC-PrPsPjP»PμPSPSCḡ PíCḡPs PíC-PrPsP·CḡCḡPIP°PSC- PíPsP±C-C†PSC-
CḡPμP°PeC†C-C—

P'P°PḡP»PëPIPs PíPsPIC-PrPsPjP»CḡC, Pë PíCḡPs PíC-PrPsP·CḡCḡPIP°PSC- PíPsP±C-C†PSC-
CḡPμP°PeC†C-C—, PIPëCḡPIP»PμPSC- PíC-CÍP»Cḡ CḡPμC" CÍC, CḡP°C†C-C—
P»C-PeP°CḡCÍCḡPePsPiPs P·P°CÍPsP±Cf. PjPμ PrP°C" P·PjPsPiCf PíCḡPsPrPsPIPḡCfPIP°C, Pë
CÍPíPsCÍC, PμCḡC-PiP°C, Pë P·P° CÍPíC-PIPIC-PrPSPsCεPμPSPSCḡPj
PePsCḡPëCÍC, Cḡ/CḡPëP·PëPe P·P°CÍC, PsCÍCfPIP°PSPSCḡ P»C-PeP°CḡCÍCḡPePsPiPs
P·P°CÍPsP±Cf. PkPμPsP±C...C-PrPSPs PíPsPIC-PrPsPjP»CḡC, Pë PíCḡPs P±CfPrCḡ-CḡPeC-
PíC-PrPsP·CḡCḡPIP°PSC- PíPsP±C-C†PSC- CḡPμP°PeC†C-C— C†PμCḡPμP·
PSP°C†C-PsPSP°P»CḡPSCr CÍPëCÍC, PμPjCf.

PḡPμCḡPjC-PS PíCḡPëPrP°C, PSPsCÍC, C-.

3 CḡPsPePë.

PjPjPsPIPë P·P±PμCḡC-PiP°PSPSCḡ.

P—P±PμCḡC-PiP°C, Pë PI C...PsP»PsPrPëP»CḡPSPëPeCf PíCḡPë C, PμPjPíPμCḡP°C, CfCḡC-
2Bḡ"8 B°Pḡ PI PsCḡPëPiC-PSP°P»CḡPSC-PNḡ CíPíP°PePsPIC†C- PrP»Cḡ P·P°C...PëCÍC, Cí PIC-Pr
CÍPIC-C, P»P°. PkPμ P·P°PjPsCḡPsPḡCfPIP°C, Pë. PkPμ CÍC, CḡCfCεCfPIP°C, Pë.
P—P±PμCḡC-PiP°C, Pë PI PSPμPrPsCÍC, CíPíPSPsPjCf PrP»Cḡ PrC-C, PμPNḡ PjC-CÍC†C-.
PḡC-CÍP»Cḡ PIPëP»CfC†PμPSPSCḡ P· C...PsP»PsPrPëP»CḡPSPëPeP° P»C-PeP°CḡCÍCḡPePëPNḡ
P·P°CÍC-P± P†PeCÍP†PḡPμPIP°B® PjPsPḡPSP° P·P±PμCḡC-PiP°C, Pë PíCḡPë PeC-PjPSP°C, PSC-PNḡ
C, PμPjPíPμCḡP°C, CíCḡC- (PrPs 25 B°Pḡ) PI PsCḡPëPiC-PSP°P»CḡPSC-PNḡ CíPíP°PePsPIC†C-
PSPμ P±C-P»CḡCεPμ 30 PrPSC-PI C, P° CÍP»C-Pr PIPëPePsCḡPëCÍC, P°C, Pë PíCḡPsC, CḡPiPsPj
C†PëC... 30 PrPSC-PI.

PkPμCÍCžPjC-CÍPSC-CÍC, Cḡ.

PḡCÍPeC-P»CḡPePë PrPsCÍP»C-PrPḡPμPSPSCḡ C%PsPrPs CÍCfPjC-CÍPSPsCÍC, C- P·
C-PSCεPëPjPë P·P°CÍPsP±P°PjPë PSPμ PíCḡPsPIPsPrPëP»PëCÍCḡ, C†PμPNḡ
P»C-PeP°CḡCÍCḡPePëPNḡ P·P°CÍC-P± PSPμ PjPsPḡPSP° P·P°CÍC, PsCÍPsPICfPIP°C, Pë
CḡP°P·PsPj P· C-PSCεPëPjPë P»C-PeP°CḡCÍCḡPePëPjPë P·P°CÍPsP±P°PjPë.

PjPíP°PePsPIPεP°.

РиPs 1,7 PjP» (70 PjPi/PjP») CтPsP·C±PëPSCr PrP»Cи C-PSBт™ C"PeC†C-PNë Cr C,,P»P°PePsPSC-, C%oPs PIPëPiPsC,PsPIP»PμPSPëPNë P·C- CГPeP»P° C,PëPiCr P† (PIC-PrPiPsPIC-PrP°C" PIPëPjPsPiP°Pj P,,PICтPsPiPμPNëCГЧьPePsC— C,,P°CтPjP°PePsPiPμC—), C-P· C,,C,PsCтPiPsP»C-PjPμCтPSPsCт P»P°PjC-PSPsPIP°PSPsCт PμP»P°CГC,PsPjPμCтPSPsCт PiCтPsP±PePsCт C,P° P°P»CтPjC-PSC-C"PIPsCт PsP±PeP°C,PePsCт P· P·P°C...PëCГPSPsCт PiP»P°CГC,PëPePsPIPsCт PeCтPëC€PePsCт. РиPs 1 C,,P»P°PePsPSCr PI PeP°CтC,PsPSPSC-PNë PePsCтPsP±C†C-.

РлP°C,РμPiPsCтC-Cи PIC-PrPiCrCГPeCr.

P—P° CтPμC†PμPiC,PsPj.

Р'PëCтPsP±PSPëPe.

PћPjPrP¶PμPS P,,PICтPsPiP° P'.P'.

РнC-CГC†PμP·PSP°C...PsPrP¶PμPSPSCи PIPëCтPsP±PSPëPeP° C,P° PNëPsPiPs P°PrCтPμCГP° PjC-CГC†Cи PiCтPsPIP°PrP¶PμPSPSCи PrC-CиP»CтPSPsCГC,C-.

РнC-PSPμCтPICrPj 7061, 4817 ZK, P'CтPμPrP°, PкC-PrPμCтP»P°PSPrPë.