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& 855 , & 8/80 9,7\$ (

\$ QGUHDV 0 % H\HU 3K ') \$ + \$) & 96 \$ 36
\$ VVRFLDWH 3URIHVVRU RI 0HGLFLQH DQG 3K\VLR
& R GLUHFWRU RI & DUGLR 2QFRORJ\% DVLF DQG 7UDQVODWLRQDO 5HVHDUFK 3URJU

+ 20(\$ ''5(66

8SRQ 5HTXHVW

2)), & (\$ ''5(66

& DUGLRYDVFXODU 5HVHDUFK & HQWHU
: DWHUWRZQ 3ODQN 5G
0LOZDXNHH :,
3KRQH & ROOHJH RI
: LVFRQVLQ 0LOZDXNHH :,

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6RFLBQ 067H0DQFMH VH U + LOIVGLHQVW

) \$ & 8/7 < \$ 332, 170(176

, QVWUXFWRU 0HGLFLQHH R&ID:ULGFERC
0 L O Z
\$ VVLVWDQW 3URIHVVRUFDOH GRDQH
: L V F
\$ VVLVWDQW 3URIHVVRU R3IK\VLROR
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± 3UHVHQW \$ VRBFIDWQHF1QRIH&BDQGLRROQR
: L V F
± 3UHVHQW \$ VRBF1QWHL RORJNUWDHRGLFDO &
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& DUGLRYDVFXODU 5HVHDURFZKD)HOORZVKLS
7UDYHO *UQQW 6,RQFWHWQDRWLRSHUWHQVLRQ
1HZ ,QYHVVWLJDWRUV 6\PSRVLXJPK 3RVWHU \$
%ORRG 3UHVVXUH ,6+
2XWVWDQGLQJ <RXQJ ,QYHVV6IRFDWWU \$ZDUC
2XWVWDQGLQJD B R&DVUHHUH \$ZDIF&OW\ %DVLFR
7UDQVODWLRQDOG L5IDVOH D&URFOOH OH RI :LVFR
'HSDUWPHQW RI OHGLFLQH
,QWHUQDWLRQDO 7UDYHO \$ZD136 IRU <RXQJ
7RS 5HYLHZHU -RXUQDO RI WKH \$PHULFDQ
-\$+\$ \$PHULFDQ +HDUW \$VVRFLDWLRQ
SUHVHQW)HOLQFDQ RIHWKW \$PMMB\$PBDWLLRDOQ)\$+\$
+ H D U W
SUHVHQW)HOORZ RI WKH \$PHULRQVJKVQDORJ
6HFWLRQ)&96 \$36

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SUHVHQW OHPEHU W\$PHURFDQWLRQK & RXQFLO I
%ORRG SUHVVXUH 5HVHDUFK
SUHVHQW OHPEHU 7KH \$PHULFDQ 3K\VLRORJLF
SUHVHQW OHPEHU 7KH 0LFURFLUFXODWRU\ 6RF
SUHVHQW OHPEHU \$PHULFDQ +HDUW \$VVRFLDW
& RXQFLO IRU \$UWURURR\DVH UIRQG V9D7VFXODU
SUHVHQW OHPEHU QDWHURRQO R J\ 2UJDQL

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 (GLWRULDO %RDUG
 SUHVHQW 5HDFWLYH 2[\JHQ 6SHFLHV
 SUHVHQW 3K\VLROJLFDO 5HSRUWV \$PHULFDQ
 *XHVW (GLWRU \$QWL &DQFH~~KLO~~~~D~~HUDS\ LQG
 7R[LFLW\ \$PHULFDQ -RXUQDO RI 3K\VLROJL
 &LUFXODWRU\ 3K\VLROJ\br/>
 SUHVHQW \$PRNUBKDVQLRDXRQD~~B~~W\ DQG &LUFXOD
 3K\VLROJ\br/>
 SUHVHQW OLFURFLUFXODWLRQ
 *XHVW (GLWRU~~R~~~~S~~~~D~~~~F~~XQDU+ \$DQW&KH DQG 'LVHD
 0XOWLGLVFLSOLQDU\ 'LJLWDO 3XEOLVKLQJ ,
 SUHVHQW *Journal of Gene Regulation -) RXQGSLVQJRFLDWH (GLWRU*

- RXUQDO 5HYLHZ

S U H V H Q W + \ S H U W H Q V L R Q
S U H V H Q W - R X U Q D O V K R M \$ R O R J L F D O 6 R F L H W \
S U H V H Q W & L U F X O D W L R Q 5 H V H D U F K
S U H V H Q W) \$ 6 (% - R X U Q D O V

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3 D J H

\$+\$ 6FLHQWLILF S6HMLVLRQ 6R PYHO , QVLJKWV
 9DVRGLODWLRQ LQ +HDOWK DQG 'LVHDVHV
 9DVFXODWXUH 7HDFK 8V
 2UJDQL]HU 6HVVLRLQ &KDLU
 \$36 &RQIHUHQFH %KRWHQRHOURJHLWDIOVR ±)URP %H
 %HGVLGH 2UJDQL]LQJ FRPPLWWHH
 6HVVLRLQ FKDLU
 \$+\$ 6FLHQWLILF 6HVVLRLQ 6\PSRVLXP
 1RQ &RQYHQWLRLQDIOKRSQGHVD RILQOL&VDRGLRYD
 +HDOWK DQG 'LVHDVH 2UJDQL]HU
 6HVVLRLQ &KDLU
 ([SHULPHQWDO %LRORJ\ ± 6\PSRVLXP
 9DVRGLODWLRQ LQ +XPDQ OLFURYHVVHOV)U
 %DFN
 2UJDQL]HU
 \$36 &RQIHUHQFHU & \$JLQQLJR YD\ FJXORQ W LHUV DQ
)ULHQGV
 &RQIHUHQFH &KDLU
 \$36 &RQIHUHQFI\ 3KLURHQRORJLHFMDLUF\ P0LWRFKRC
 %HQFK WR %HGVLGH
 2UJDQL]LQJ &RPPLWWHH
 ([SHULPHQWDO %LRORJ\ ± 6\PSRVLXP
 &KHPRWKHUDS\ LQGRX[FLHFGW\ D\ F\ RO\ PD\ OO 7KLQ
 0DWWHU
 2UJDQL]HU 6HVVLRLQ &KDLU
 :RUOG &RQJUHVV RI OLFURFLUFXODWLRQ
 \$ XQLYHUVH EH\ RQG 526 DQG \$73 1RYHO
 0LWRFKRQGULD DV 6HFRQGDU\ 0HVVHQJHUV
 2 U J D Q L H U] H U
 ([SHULPHQWDO %LRORJ\ ± 6\PSRVLXP
 OLFURFLUFXORQ W\ W\ R\ R\ Q\ W\ R\ R\ Q\ W\ D\ Q)DLOXUH
 2UJDQL]HU 6\PSRVLXP &KDLU
 3K\VLRORJ\ \$EHUGHHQ 6FRWODQG
 &RQWULEXWLRQ RI PLFURFLUFXODWLRQ WR G
 IDLOXUH
 2UJDQL]HU 6\PSRVLXP &KDLU
 9LUWXDO 1\$9%2 0LQL V\PSRVLXP
 +XPDQ 2UJDQL\ 6X\GW\ 9D\ W\ F\ R\ D\ U 7R[LFLW\

 &KDLU RUJDQL]HU
 WK:RUOG &RQJUHUVFXRD\MLRQ F\%HLMLQJ &KLC
 \$QWL FDQFHU WU\ K\ W\ P\ B\ Q\ W\ W\ D\ X\ Q\ G\ F\ W\ Q\ B\ Q\ W\ P\ H\ F\

 DQG FOLQLFDO LPSOLFDWLRQV
 &KDLU RUJDQL]HU

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\$36 &RQIHUHQFH 7UDQVODWLQRQDO

3DJHRI

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6RXUFH 0&: ± 5HVHDUFK \$IIDLUV &RPPLWWHH
5ROH 3,
3,%H\HU
'DWHV ±
3URMHFW 7RWDO

7LWOH 'LIH UHQWLQGDWLRQO RYIVP LQWLFDOORJHLQVFWL RQ R
6RXUFH 0&: ± 5HGR[%LRORJ\ 3URJUDP
5ROH 3,
3,%H\HU
'DWHV ±
3URMHFW 7RWDO

7 L W O H ' L I I H U H Q K A R L Q D G U L L R D O O R Y I V P L O V X A F T H O O R D R U H I U D Q V F H W L R Q R
6 R X U F H 1 , + 2 I I L F H R I ' L U H F W R U
5 R O H 3 ,
3 , % H \ H U
' D W H V ±
3 U R M H F W 7 R W D O

7LWOH 'LIIHUVWREQRQGRQHIDQRIDRQG QFWVQHLDW\ WHORPHUD
,Q UHJXODWLRLQ RI PLWRFKRQGULD DQG FDUGLRYDV
6RXUFH \$+\$
5ROH OHQWRU
3, \$LW \$LVVD
'DWHV ±
3URMHFW 7RWDO

7LWOH 0HFKDQLVP RI)ORZ ,QGXFHUGF XLOO'DAWLIRQQ LQ WKH
6RXUFH 1,+ 1+/%,
5ROH &R ,QYHVWLJDWRU
3, *XWWHUPDQ
'DWHV ±
3URMHFW 7RWDO

7LWOH 'HYHORSPHQW RI D 1DWXUHW%DQHGR2XPSQURRYUH
%UHDVW &DQFHU 6PXPUXYQLYWRU\QKJDSJH\$G&5FHVHDUFK \$SSURD
6RXUFH 0&: 3DWLHQW &HQWHUHG 2XWFRRPHV 5HVHDUFK &
5ROH FR 3,
3, %H\HU .
'DWHV ±
3URMHEW 7RWDO

7LWOH +DUQHVVLQJ 7HORPHUDVH

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1RQ 3HHU 5HYLHZ

7 L W O H Effects of TEVA Compound on Human Vascular Reactivity
6 R X U F H 7 H Y D 3 K D U P D F H X W L F D O V
5 R O H 3 , P X O W L 3 , J U D Q W
3 , * X W W H U P D Q % H \ H U
' D W H V ±
3 U R M H F W 7 R W D O

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1DWLRQDO , QWHUQDWLRQDO

OLWFRQGULDO 7HORPHUDVHQW \$RQGLDGLURVDJQFDXOIDQJ
3DWKRSK\VL RORJ\ 'LVWLQJXLVKHG 6F6L RQXWLKW \$IOPUDIE
'HSDUWPHQW RI 3KDUPDFRORJ\ ODUFK
(QGRWKHOLD O IXQFWLRQ +\SHUWHQVHRZQ \$DQYGDQDFUHGVLR
&DUGLRYDVFXODU \$S\$RVIDXPH \$BHWVWDXDQ%\$QILUYXHVU V LHWQ RW H
6SHDNHU 1RY
&RURQDU\ \$UWHU\ 'LVHDVH WR &DUGGR %2QFNR Q\$RIDLQ D -
'HSDUWPHQW \$IX3KVWLBRQRQLYHUVLW\ OD\ 7KH 7UDYHOHG URDG RI 0LFURFLUFRODDNULQLR +2QFRP R&JR UDQG EDFN DJDLQ 0ROHFXODU 0HGLFIDQH &HQPWQDU U0BDHUK
(IIHFV RI \$QWL &DQFHU 7KHUDS\ RQ +XSPHDQLOHGWBDYDVF
%LRORJ\ \$SULO
0HFKDQLVPV RI 0LFURYDVFXODU ZKRDMLFDLUM\ WRKIH %
FOLQLFDO LPSOLFDMISRQXRQH O+RQJKWFHDWPG L&RL WQZIRGOHR J&
FRQVRUWLXP 6HSWHPEHU
\$ 1HZ \$SSURDFK LQ &DUGLDF 2QFRORJ\ \$/UHWMBQVL VHHDOUQH
9LUWXDO 1\$9%2 0LQL V\PSRVLXP RQH\$DQHUGDQYDVFODU
\$QWL &DQFHU 7KHUDS\ ,QGXFHG 0LFURYDVFXODU '\VIXQ
'1\$ GDPDJH 9DVFODWD
&KHPRWKHUDS\ ,QGXFHG D&DQHUGDQH RVERQHPLJZQWK, QYDVOIOG 2U
6HPLQDU 8QLYHUVLW\ RI ,RZD 'HSDUW\$RORQW, RZD+H&DQW/K
-DQXDU\ +DUQHVVLQJ 7HORPHUDVH &KDOOHQJPHVQDQ &QUQHDL2W
RI +DQQRYHU 0HGLFDO 6FKRRO +DQQRYHU *HUPDQ\ -XQH

ODUFK

0HPEHU 'LYHFLQWLW\R DQGR PPLWDQH
R I : L V
2UJDQL]LQJ &RPPLWWHH 5HGR[%LRORJ\ 6
0HPEHU ,QVWLWXWLQRQDO \$OHRGDQD&DUH D
&ROOHJH RI :LVFRQVLQ
0HPEHU 5HLWHWD&RFP\$IWWDWHH 0HGLFDO &ROO
R I : L V
0HPEHU RHISDHUGWPHQHMF5H &RPPLWWHH

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SUHVHQW 0HQWRU IRU 6XPPHU UHVHDUFK SURJU
• 5HVHDUFK 2SSRUWXQLW\ IRU \$FDGHPLF
6FLHQFH 52\$'6
• 6XPPHU 3URJUDP IRU 8QGHUJUDGXDWG 5
• 0HGLFDO 6WXGHQW 6XPPHU 5HVHDUFK 3U
• 'LYHUVLW\ 6XPPHU +HDOWK 5HODWHG 5I
3URJUDP '6+5(3

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& U L W L F D O U R O H R / V D R @ R R K R R Q U L L Q L F H J R X Y O D D W F X R Q Q U R I
(Q G R W K H O L D O) X Q F W L R Q

%H\HU \$OXPEDFK */ +DODDL &QFQK &ULFNUKROG 7' *KRQH
 60 GH /DQJH :- .HHQ +/- 7VDL <6 ODHGD ,QW6HLUPXIQHQ&H
 ZLWK 33\$5JDPPD VLJQDQHQJD DYDXWFWXODU G\VIXQFWLRQ
UHPRGHOLQJ +\SHUWHQVLRQ 3\$&,' 30 &
 +DODEL%H&H /DQJH :- .HHQDFK %DXDUDFL)0 6LJPXQ
 ' ,QWHUIHUhQFH ZLWK 33\$5 JDPPD IXQFWDRQ XDOUVPR
 G\VIXQFWLRQ DQG K\SHUWHQVLRQ &HO30 &0'H WDE
 30 &
 'H /DQJH :- +DODHEW 600PXQG & ' *HUP OLQH DFWLYDWLR
 DQG 600+& SURXPVRHWQ RQ QFH QHQWERDQDORIH DQH H G3K\VLRQ
*HQRPLFV 6HS 30 &,' 30 &
 %H\HU \$OH /DQJH :- +DODNEQ/ &OHHQ QULFDUDQG)0 6LJPX
 (QGRWKHOLXP 6SHFZLWFK ,QHNUHRU LHVURPQFWURDWIHHGU D5M R H SWR
 *DPPD &DXVHV &HUHEUDO 9DVFXODUK') \DIWQEMMW R &LLQF 5HHW
 6HS 30 &,' 30 &
 .HHQ +/- +DODHEW &OSH /DQJH :- /LX ; ODHGD 1)DUDFL)0
 7/ 6LJPXQG & ' %LRLQVILRU RDWHLQH \$QEWVJ DIQJGQ DWIHYGDWH
 DQG 'RPLQDQW 1HJDWL YH 3HUR[LVRPWI 3JDRPOLDHULQWRU
 0RXVH \$RUWDU \$UKWREBE R9MFVQH %LRO
 30 &,' 30 &
 %H\HU \$OR ') HW DO &RQWUDVWIOQJVYDRMF%DDGHWI
 %LHGO V\QGU\$PH 3KQMLV DUFHDKUWLRFQ 'H
 + 30 &,' 30 &
 *XR ') %H\HU \$0 <DQJ % 1LVGKQ&XUDKRRXQHJLH,QDFWLY
 RI %DUGHW %LHGOX6M QONULRGQH JGQH RDMH \$DQ 3K\VLRQ
)HE) 30 &,' 30 &
 %H\HU \$6DIIIT&@ è'PHOLfQ5@H U@ 0%3Q@UH&BQ LHFK x! GTRPQED^UG QD AE
 DUH SURWHFWHGHDHJDWQVUH QD WFRXQHML VGL HWSIHQGVHFQVGL RQ
\$XJ 30 &,' 30 &
 %H\HU \$OR ') 5DKPRXQL .HDBWRDQWJZLGWWU\$QJL RWHQV LQ
HQGRWKHOLDI IXQGWRLRHQVLWIGL H+VSSHQQGVHFQV
3HQJ < < X ' *UHJRUZFHKHU \$XQMVQHUPDQ '' *H < ,QGH
SURWHRPLF DQDORIS/RLR\RVLIQXE DQWRSJ GRZQ PDVV VSHFWU
 3 ApD* PPO @

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)UHHG%-H\HU \$R0*LXGLFH - \$ +RFNHQE HUU\ - & * X W W H U P D
FKDQJHV WKH PHGKD MCR UYDRV RIGLROZD MQLQJ IWR PK OGLURWJHFQ I
SHUR[LGH LQ WKH KXP DQ PLFURFLUFXODWL R300 & LUF 5HV
30 &
%H\HU \$XUDQG 0- +RFNHQE QUT& -3K*IDOPELS V 6\$ * X W W H U P
\$Q DFXWH ULVH LQ LQWUDOXPLODROZ SPHHGVLDXWUHG VOKLWD W IWR
QLWULF R[LGH WR K\$GPUORàJHQ0\$H @RQ!LQGH LpRHUGA@HA° À p•€

\$XGL 6)ULHGO\ 1 'D V&KO BX %KH \$H9U -\$DOF REV (5 'H W H F W L R Q
 3HUR[LGH 3URGX FWHIGR QDIAQ /W@JH &V B@J \$ P5SDOGH[F\$DIOG5 H V H D U
 DFFHSWHG IRU SXEOLFDWLRQ \$XJ
 &KDERZVNL '6 . D G O B F. \$ 2 R \$ NWQ\$ELHVWU \ - %&H \ BHUD\$JOV R Q 3
 *XWWHUPDQ '' / \ V R S K R V S K D W I H G I H S W R I U G W D R F O A V F I R C Q D U \$ +
 IORZ LQGXFHG GLODWLRQ LQ KXP DQ DRGOLSRVH DUWHU
 1RY GRL ESK (SXE 2FW 3
 3XE0HG &HQWUDO 30& , ' 30&
 'XUDQG 0- \$LW \$LVVD . /HYFKHQNR 9 %WMDHUUK \$OKHQNR \$
 9LVXDOL]DWLRQ DQG 4XDQWLILF DWKLHR QRQGIROWL KMRQFLKRPQ BULQ
 \$UWHULHV &DUGLRRDVF 5GRVL F3YXUEFOYH G 30 , '

 \$LW \$LVVD . %ODV]DN 6& %HXWQHU * - 7V)DOLKVW H U O B U J B Q F H 6
 ' / & D P D U D \$. D Q G * X W W H U P D Q ' ' ' R Q
 0LWRFKRQGULDO 2[LGDWLYH 3KRV\$KIRUNHGTWWLZLQW & H&R B W Q
 \$UWHU\ 'LVHDV&R 6WVH QWLILF UH 30 , '
 \$LW \$LVVD . +HLR/RQH U R U 6R / 1 R'WZQQLV % 'R\ R Q * +DUPD
 \$ &DPDUD \$H\HDQSGO HORPHUDVH GHILFLHQF\ SUHGLVSR
 DQG LVFKHPLD UHS HUIXVLRQ ,QMXUGLFWQRHQWLHUV LQ &D
 30 , '
 +DGHU 61 =LQNHYLFK 16 1RUZRRG 7RHUOR -(* .XWMMHHOP \$Q
 '' DQ%H\HU \$0HWULPHQWDO (IIHFVW RI &KHP RWKHUDS
 0LFURYDVFХОДУ)ХQ FRAXLURQD O\$ PRH U3KF DVQGR & RWFХӨДWWRUDQ
 3K\VLRORJ\
 'XUDQG 0- +DGHU \$1 = 'LHQNDH XQ BIQ 1 %H\QW \$%& 5 -
 \$% / 7\URVLQH .LQDVH !& T@sK\ LR pRD ws 0 D QE

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5HKR -- * XRH\H U \$H J P D Q 3 R L Q W\W /5 D3KLPHUXFQL . 9 D V F X O D
HIIHF WV RI GLV U & S\N\I2G & H\QIGRQMDIOHL\QRI DL Q KR\IHR/Q W\H J X O
, Q WH J U & R P S 3 K\VL R O \$ X J 5 5 G R L
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% H\H U \$10R UZ R R G 7 R U R /(+ X J K H V : (< R X Q J 0 D & O R X J K \$ 9
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%H\HU \$HDODEL &0 .HHQ +/- 0DWKXU 6 7VDL < 6 0DHC
 3K\VLROJLFDO 6LGIQQWLFIQDM\LDQG RJJH3\$5H QDPVP DQ7 WUKH
 9DVFXODU (QGH\WW\WIRQIHX B\PSRVLD 33\$5 /;5 7UDYHO \$
 %H\HU \$HDODEL &0 0DWKXU 6 .HHQ +/- 6LJPHQIGF & *HQH
 0LFH ZLWK 7LVVXH 6SHFLILF ([SUHVVLQJ QRGIR3W3\$150*LDXPP
 ([SHULPHQWDO %LRORJ\
 .HHQ +/- 5\DH0HU \$OLJPXQG & 0LFURDUUD\ \$QDO\VL
 ([SUHVVLQJ &KDQJHV LQ 0RXVH \$RUWDD3'3\$15QJQ&KWRQLF
 +\SHUWHQVLRQ
 +DODEL%&0HU \$BHQ +/- /DQJH :0' 6DJUPDXFQG) & 3LYRWDO 5R
 RI 6PRRWK 0XVFOH 6SHFLILF 33\$5 JDPDULQX\RKWL5RHQJXO
 +\SHUWHQVLRQ H 2UDO 3UHVHQWDWLRQ
 %H\HU \$HDODEL &0 .HHQ +/- 0RGULFN 0/ DUDUDFL)0
 '\VIXQFWLRQ LQ 7U\$QMYWQQB \OLFRHP \QDQDQW WHRDW3\$5H 0
 +\SHUWHQVLRQ H 2UDO 3UHVHQWDWLRQ
)DUDFL)0 /\QFK & 0RGULFNH 0/ \$0DDE6 &DHGD 1 6LJPX
 & , QVLJKW IURP 0LFH ([SUHVVLQJ D \WLRDQQL\OR P313\$5\QW 1
 6WURNH
 +DODEL%&0HU \$BHQ +/- /DQJH :-') DUDFL)0 6LJPXQG &
 YDVFXODU IXQFWLRQ LQ WUDQVJHQ LFFF\PIILFH GZRLPV\Q DVQPMR
 QHJDWLYH K33\$5 JRDP P)6H 15 UHVVID
 %H\HU \$0QFK & 0RGULFN 0/ +DODEL &0 7VDL < 6 0DHC
)DUDFL)0 3URWH\$3\$5YHLQ\IMH\EM YRDVIEJKOMDUIUZRDPO\PLF, QV
 H[SUHVVLQJ WKH 3JDWGRHP LPQDQDW QRHQ\$6Q%33\$5 JEPFD
 2UDO 3UHVHQWDWLRQ
 .HHQ +/- +D0%H\W\$0 /DQJHQ :-' 0DHGD 1)DUDFL)0
 3DWWHUQV RI *HQH ([SUHVVLQJ LQ \$RQWWD1HW\RDW\QW
 0XWDWLRQV LQ 33\$5\ +\SHUWHQVLRQ H
 •2402=0401 p1&-(L R \POEADL%-8(05PU d\$FH#BD H'd' #D` Ép •20 9 H

%H\HU \$7UDQWRZ & \$QGHUVRQ9DVF~~EDIDWURGEL~~WKFH
 PXWDWLRQ LQ WKH /\VRVRPDO 7UDIILFNHQJ 5HJXODWR

%H\HU \$DGLRQ 6 6KHIILHOG 9& 5DKPRXQLQ P\$ROXWHUHG Y
 PRGHOV RI %DUGHW~~RXLHOGDOO~~ VRQ GUSRPUHW~~GXQS/SLOR~~ Q F
 GH /DQJH%H\HU \$DODEL &0 *RQJDQH])- 6LJPXQG &
 +\SHUFRQWUDFWLOLWQ WURFHQGDRFWN~~KQCB\$G~~ R~~DMPKHDOLDO~~
 +\SHUWHQVLRQ 2UDO 3UHVHQWDWLRQ

%H\HU \$*R ') 'LGLRQ 603& 65KDH~~PLRXQG~~ . %DUGHW %LHGO
 *HQHV \$UH ,QYROR~~GR~~ LQ DWIR~~M~~ Q&DRUQ~~WXLQJFRVQL~~ RQ +\SHUWHQWDWLRQ DQG 7UDYHO \$ZDUG

%H\HU \$*R ') 5DKPRXQLVLQ \$QJBLRR~~WHHQFWXO~~ \$UDLQVW
 '\VIXQFWLRQ \$VVRFLLO~~GXFGH~~ GL~~W~~ VLV~~WW~~ H~~Q~~ V~~Q~~ LRFQH +\SHUWHQWDWLRQ 2UDO SUHVHQWDWLRQ

%H\HU \$*QHUW 03 /RPE~~WULQ~~ G+5R~~QRWRIQW~~ KIHQ 5H~~Q~~ LQH \$QJLR
 LQ 0DLQWDLQLQJ 85H~~QHDE~~ D~~W~~ Q~~R9Q~~ V~~Q~~ X~~OSHLQJQH~~ V&Q~~QS~~ -R~~XUQ~~
 RI +\SHUWHQVLRQ 6W~~SRWHR~~ 6H~~QJV~~ RI S~~Q~~ K~~MRE~~ Q~~MMWU~~ Q~~RDWL~~
 K\SHUWHQVLRQ PHHWLQJ

%H\HU \$DIIIDL * :HLQE~~HUJ~~ % /RPE DUG -UH 3DJKOV~~BB~~ ~~W~~ G6H
 DJDLQVW 9DVFXODUR~~'HIIWW~~ Q~~G~~ K~~OHDGW~~ H~~SH~~ VLW\ 3URFH~~H~~ GLC
 %ORRG 3UHV~~VVXUH~~ Q~~H~~ H~~B~~ U~~SH~~ K~~U~~ &R~~HQ~~ H~~I~~ R~~Q~~ H

%H\HU \$OHXUWV \$)UHGULF~~K~~ LVVR~~Q~~ E~~B~~ U~~G~~ X~~W~~ B~~W~~ Q~~R~~ Q~~DRJ~~ ([W
 6XSHUR[LGH 'LVPXWD~~D~~ K~~O~~ H~~GD~~ Q~~W~~ GL~~HQQ~~ VLWLYH 5DWV 3UR
 0LFURYDVFXODU '\VIXQFWLRQ 3URFH~~HHG/LVQJUH~~ R~~SIHWH~~ K~~DU~~ F~~K~~
 &RQI~~HQFH~~ +\SHUWHQVLRQ H H

%H\HU \$0

0 D U F K

% H\H U \$X W W H U P D Q '' \$1 * 1 R 05HHG\WDRWUHHG\ 'L O D W L R Q L Q 5 H
J) ORZ LQ + X P D Q 0 L F U R Y H V V H O V I U R P 6 X E M R H I F W W K Z I H W K
3 K \ V L R O R J L F 3 D U R 16 R F W K W 8 3 6
0 L O O H U % * X W W H U P / D H Q H U \$T H O R R N P I H Q J \$ V H V X S S O U H V V H V P L

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3 D J H R I

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3 D J H

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, E U D K L P (6 + 1 R U E H U % \$ \ H U D S O H U 6 1

3 D J H R I

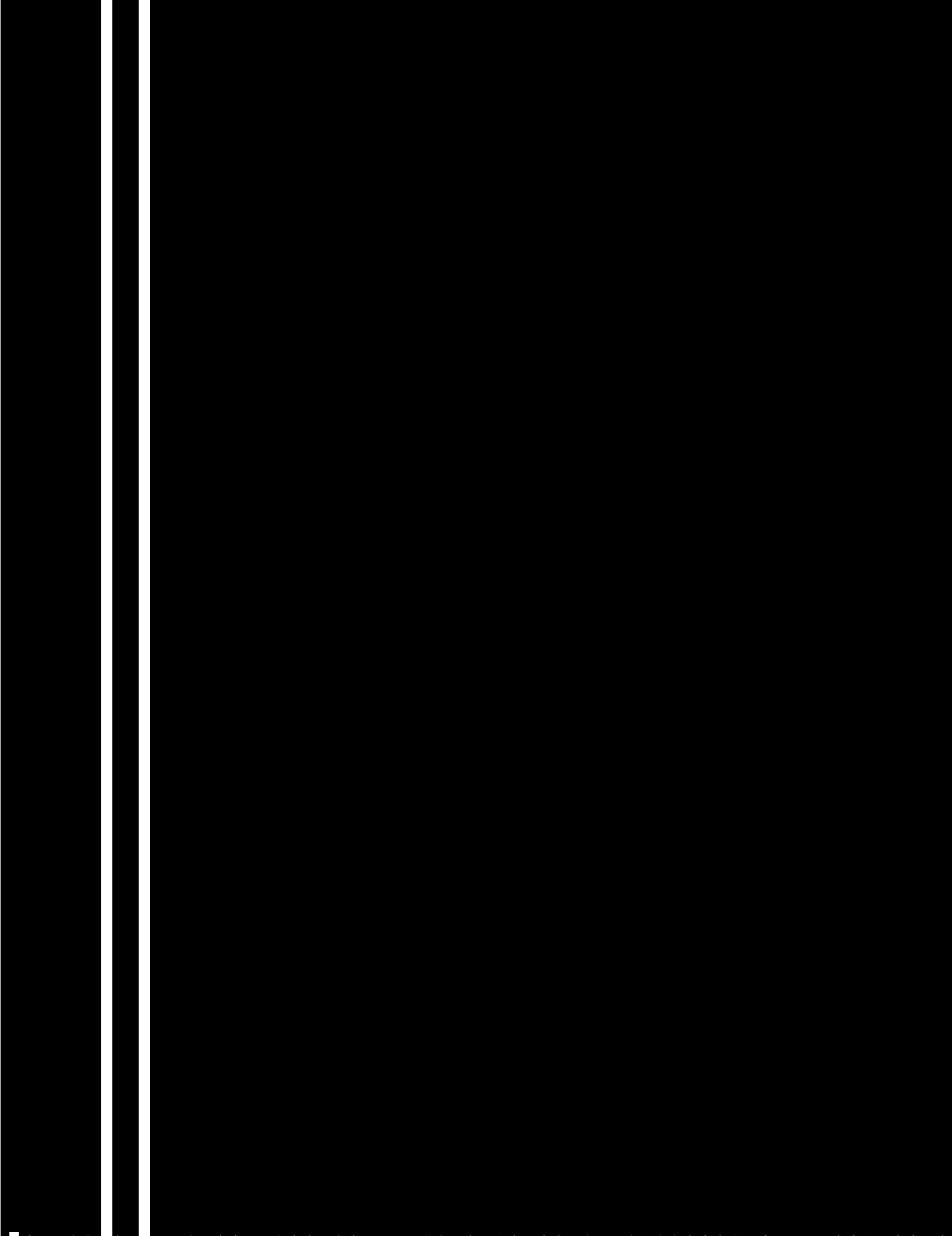
			<ul style="list-style-type: none"> •)LQDOLVW IRU ,QWHUQDWLRQDO 6RFLHW RI +\SHUWHQVLRQ <RXQJ ,QYHVWLJDWRU DZDUG • \$36 &9 VHFWLRQ ± 2XWVWDQGLQJ 7UDLQHH \$ZDUG • \$+\$ %&96 1HZ ,QYHVWLJDWRU 7UDYHO \$ZDUG • 0XOWLSOH 3UHVHQWDWLRQ DW QDWLRQD PHH WLQJV LQFOXGLQJ ([SHULPHQWDO ELRORJ) DQG \$PHULFDQ +HDUW \$VVRFLDWLRQ 6FLHQWLILF 6HVVLRQV ,QWHUQDWLRQDO 6RFLHW\ RI +\SHUWHQVLRQ • 3XEOLFDWLRQV 30,'
'LOOV -DND\OD 8QGHUJUD VWXGHQW	3UHFHS\$WRH 64B(3H 3URJUDP SDWKROJ\	0LWRFKRQGULDO HIHFWV LQ &DUGLRYDVFXODU SDWKROJ\	7XVNHHJHH 8QLYHUVLW\
4XU\VKL 1DEHHO +LJK 6FKR 5HVHDUFK	3ULPDU\		<ul style="list-style-type: none"> • ,QWHO ,QWHUQDWLRQDO 6FLHQFH DQG (QJLQHHULQJ)DLU)LQDOLVW ,6() • 6LHPHQV &RPSHWLWLRQ LQ 0DWK 6FLHQFH DQG 7HFKQRORJ) 1DWLRQDO 6HPL)LQDOLVW • -XQLRU 6FLHQFH DQG +XPDQLWLHV 6\PSRVLXP 1DWLRQDO)LQDOLVW • 3UHVVLGHQWLDO 6FKRODU \$ZDUG G° R'e €€€{U & P€06•pp iP P SQZ B 0Lμ0 4¥À` 0e

ODUFK

• 3XEOLFDWLRQV 30,'

&DUU
.DWKHULQH
OHGLFDO VWXGHQW

3DJHRI



ODUFK

DUROLQH WXP 6XGHQ)UDQFHV HOOHEUDQGW 3URIHVVLRQDO SSRUWXQLW\ \$ZDUGV LQDOLVW \\$PHULFDQ 3K\VL RORJLFDO RFLHW\ &DUGLRYDVFXODU 6HFWRQ XWVWDQGLQJ 7UDLQHH \$ZDUGV	XOWLSOH 3UHVHQWDWLRQ DW QDWLRQD HHWLQJV LQFOXGLQJ ([SHULPHQWDO >LRORJ\ DQG \$PHULFDQ +HDUW VVRFLDWLRQ 6FLHQWLILF 6HVVLRQ XEOLFDWLRQV 30,'

FLILF

&
DRVQRUV 3URMHFW IRU %DFKHORU RI
FLHQFH 3K\VL RORJ\
EVWUDFW SUHVHQWDWLRQDHW
DSHULPHQWDO %LROWRJGHQWDQG:
DVFXODU 'LVFRYHULHV

HGLFDO 6WXGHQW 6XPPHU HVHDUFK)HOORZVKLS YLD 7 JUDLQLQJ JUDQW 5HVLGHQW DQH VHVHQWHG ZRUN D\$X \$R\$ DVFLHHDQWKL F HVVLRQV &DUH RQWULEXWHG WR QDQFRQVULQW SHQGLQJ RQRUV LQ 5HVHDUFK	

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