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(54) Title: ANTI-CD154 ANTIBODY HAVING IMPROVED BINDING, FUNCTIONAL AND SAFETY CHARACTERISTICS AND USE IN HUMAN IMMUNOTHERAPY

FIGURE 1A

Heavy Chain

Variable region shown in bold
CDRs highlighted in yellow
Affinity maturation mutated residues underlined
Formulations (E→R and K→A) shown in red

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10      20      30      40      50      60
EVQLQESGGG LVRPESYLEI ECTVSGDSIT NSPWITWRD DQKLEYFMT IYSYGSITTS
70      80      90      100     110     120
PALESRLSIS RDTSKNQYSL KLSVTAADI QVYCAQRY GRPTTFDQV QQTLLVSS
130     140     150     160     170     180
ASTEPQGVF LADSKKCGD CAALGCLVE DFFPEPTVS WSGALGQV EIRAVLQSE
190     200     210     220     230     240
SLKELGVVT YRDSVLGQF KICNVHRFD NLSVDKRAF RCDKATHCT PCIAELGQD
250     260     270     280     290     300
PSVLAFFKFP LLLLSLSLF EYTCVVVDV HMLPFLRWV SVGVGDMR KTRFRKCHL
310     320     330     340     350     360
STYRVSVT VYHQDWNGR FYKCAVSKK LPTPTKTTG RANGQPRPD VYILPSPRP
370     380     390     400     410     420
LQKQVLSGQ IYGVTFPDT AVKLSKSGE EKSVITLPPV LQDGGTFVY SFLTPKQSK
430     440     450
QQQWFFQGVY FRAHARHMT QSGLSGTSK
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(57) Abstract: Improved anti-CD154 antibodies are provided herein which have improved therapeutic potency, *in vivo* half-life and ablated FcR binding and/or complement binding/activation. The use of these antibodies for inducing tolerance and treating immune diseases including autoimmunity, inflammation, transplant recipients, fibrosis and allergic disorders is disclosed herein.