

Supplementary Materials I The full amino acid sequence of dCas9-Tet1 CD.

MYPYDVDPDYASPKKKRKRVEASDKKYSIGLAIGTNSVGVAVITDEYKVP SKKFKVLGNTDRHSIKKNLIG
ALLFDSGETAEATRLKRTARRRYTRRKNRICYLQEIFSNEMAKVDDSFHRLEESFLVEEDKKHERHPI
FGNIVDEVAYHEKYPTIYHLRKKLVDSTDKADLRLIYLALAHMIKFRGHFLIEGDLNPDNSDVKLFIQ
LVQTYNQLFEENPINASGVDAKAIL SARLSKSRLENLIAQLPGEKKNGLFGNLIALSLGLTPNFKSNF
DLAEDAKLQLSKDQYDDDLNLLAQIGDQYADLFLAAKNLSDAILLSDILRVNTEITKAPLSASMIKRY
DEHQDLTLLKALVRQQLPEKYKEIFFDQSKNGYAGYIDGGASQEEFYKFKIPILEKMDGTEELLVKN
REDLLRKQRTFDNGSIPHQIHLGELHAILRRQEDFYFPLKDNREKIEKILTFRIPYYVGPLARGNSRFA
WMTRKSEETITPWNFEVVVDKGASAQSFIERMTNFDKNLPNEKVLPKHSLLYEYFTVYNELTKVKYVTE
GMRKPAFLSGEQKKAIVDLLFKTNRKVTVKQLKEDYFKKIECFDSVEISGVEDRFNASLGTYHDLKII
KDKDFLDNEENEDILEDIVLTLTLFEDREMI EERLKYAHLFDDKVMKQLKRRRYTGWGRLSRKLINGI
RDKQSGKTILDFLKSDFANRNFMLIHDDSLTFKEDIQKAQVSGQGDSLHEHIANLAGSPAIKKGILO
TVKVVDELVKVMGRHKPENIVIEMARENQTTQKGQKNSRERMKRIEEGIKELGSQILKEHPVENTQLQN
EKLYLYLQNGRDMYVDQELDINRLSDYDVDAIVPQSFLKDDSIDNKVLTRSDKNRKGSDNVPSEEVVK
KMKNYWRQLLNAKLITQRKFDNLTKAERGGSELKAGFIKRQLVETRQITKHVAQILDSRMNTKYDEN
DKLIREVKVITLTKSLVSDFRKDFQFYKVIENNYHHAHDAYLNAVVG TALIKKYPKLESEFVYGDYKV
YDVRKMIKSEQEI GKATAKYFFYSNIMNFFKTEITLANGEIRKRPLIETNGETGEIVWDKGRDFATVR
KVL SMPQVNI VKKTEVQTGGFSKESILPKRNSDKLIARKKDWDPKKYGGFDSPTVAYSVLVAKVEK GK
SKKLKSVKELLGITIMERSSEFEKNPIDFLEAKGYKEVKKDLI IKLPKYSLFELENGRKRMLASAGELQK
GNELALPSKYVNFYLYLASHYEKLGSPEDNEQKQLFVEQHKHYLDEIIEQISEFSKRVI LADANLDKVL
SAYNKHRDKPIREQAENI IHLFTLTNLGAPAAFKYFDTTIDRKRYTSTKEVLDATLIHQSI TGLYETRI
DLSQLGGDSPKKKRKRVEASGGGSGGGSGGGSEAAAPCD CDGGTQKEKGPYYTHLGAGPSVA AVRELMET
RFGQKGKAIRIEKIVFTGKEGKSSQGCPVAKWVIRRS GPPEKLI CLVRERVDHHCSTAVIVLILLWEG
IPRLMADRLYKELTENLRSYSGHPTDRRCTLNKKRTCTCQGIDPKTCGASF SFGCSWSMYFNGCKFGRS
ENPRKFR LAPNYPLHNYKRITGMSSEGS DVKTGWIIPDRKTLISREKQLEKNLQELATV LAPLYKQM
APVAYQNQVEYEEVAGDCRLGNEEGRPFSGVTCCMDFCAHSHKDIHNMHNGSTVVCTLIRADGRDTNCP
EDEQLHVLPLYRLADTDEFSGVEGMKAKIKSGAIQVNGPTRKRRRLRFTEPVPRCGKRAKMKQNHKSGS
HNTKSFSSASSTSHLVKDESTDFCPLQASSAETSTCTYSKTASGGFAETSSILHCTMPSGAHSGANAAA
GECTGTVQPAEVAAPHQSLPTADSPVHAEPLTSPSEQLTSNQSNQQLPLLNSQK LASCQVEDERHPE
ADEPQHPEDDNLPQLDEFWSDSEEIYADPSFGGVAIAP IHGSVLI ECARKE LHATTSLRSPKRGVPFRV
SLVIFYQHKSLNKNPNHGFDINKIKCKCKKVTKKKPADRECPDVSPEANLSHQIPSRVASTLTRDNVVTVS
PYSLTHVAGPYNRWV

Annotations:

Bold: the sequence for the epitope of Human influenza hemagglutinin (HA);

Blue color: the sequences for the aminor (N-) and carboxyl (C-) nuclear-leader signal (NLS);

Pink color: the sequence of *Streptococcus pyogenes* Cas9_{D10A, H840A}, dCas9;

Green color: the sequence of the interspaced linker;

Red color: the sequence of the catalytic domain of mouse Tet1 (Tet1-CD).

Supplementary Materials II The full amino acid sequence of MS2-NLS-Tet1 CD.

MASNFTQFVLVDNNGGTGDVTVAPSNFANGVAEWISSNSRSQAYKVTCVSRQSSAQKRKYTIKVEVPKVA
TQTVGGVELPVAAWRSYLNMELTIPIFATNSDCELVKAMQGLLKDGNP IPSAIAANS GIY **SAGGGGSG**
GGGSGGGG **SPKKKRKVEAS** **GGGSGGGSGGGSG** EAAPCD CDGGTQKEKGPYYTHLGAGPSVAAVRELMET
RFGQKGKAIRIEKIVFTGKEGKSSQGCPVAKWVIRRS GP EEKLI CLVRERVDHHCSTAVIVVLILLWEG
IPRLMADRLYKELTENLRSYSGHPTDRRCTLNKKRTCTCQGIDPKTCGASF SFGCSWSMYFNGCKFGRS
ENPRKFRLAPNYPLHNYYKRITGMSSEGS DVKTGWII PDRKTLISREEKQLEKNLQELATV LAPLYKQM
APVAYQNQVEYEEVAGDCRLGNEEGRPFSGVTCCMDFC AHSKDIHNMHNGSTV VCTLIRADGRDTNCP
EDEQLHVLPLYRLADTDEFSGSVEGMKAKIKSGAIQVNGP TRKRR LRFTEPVPRCGKRAKMKQNHKSGS
HNTKSFSSASSTSHLVKDESTDFCPLQASSAETSTCTYSKTASGGFAETSSILHCTMPSGAHSGANAAA
GECTGTVQPAEVAAPHQSLPTADSPVHAEPLTSPSEQLTSNQS NQQLPLLSNSQKLASCQVEDERHPE
ADEPQHPEDDNLPQLDEFWSDSEEIYADPSFGGVAIAP IHGSVLI ECARKELHATTSLRSPKRGVPFRV
SLV FYQH KSLNKNHGF DINKIKCKCKKVTKKKPADRECPDV SPEANLSHQIPSRVASTLTRDNVVTVS
PYSLTHVAGPYNRWV **AAADYKDDDDK**

Annotations:

Blue color: the sequence of MS2 coat protein;

Green color: the sequence of the interspaced linker;

Bold: the sequence for the nuclear-leading signal (NLS);

Red color: the sequence of the catalytic domain of mouse Tet1 (Tet1-CD);

Orange color: the sequence of the Flag peptide.