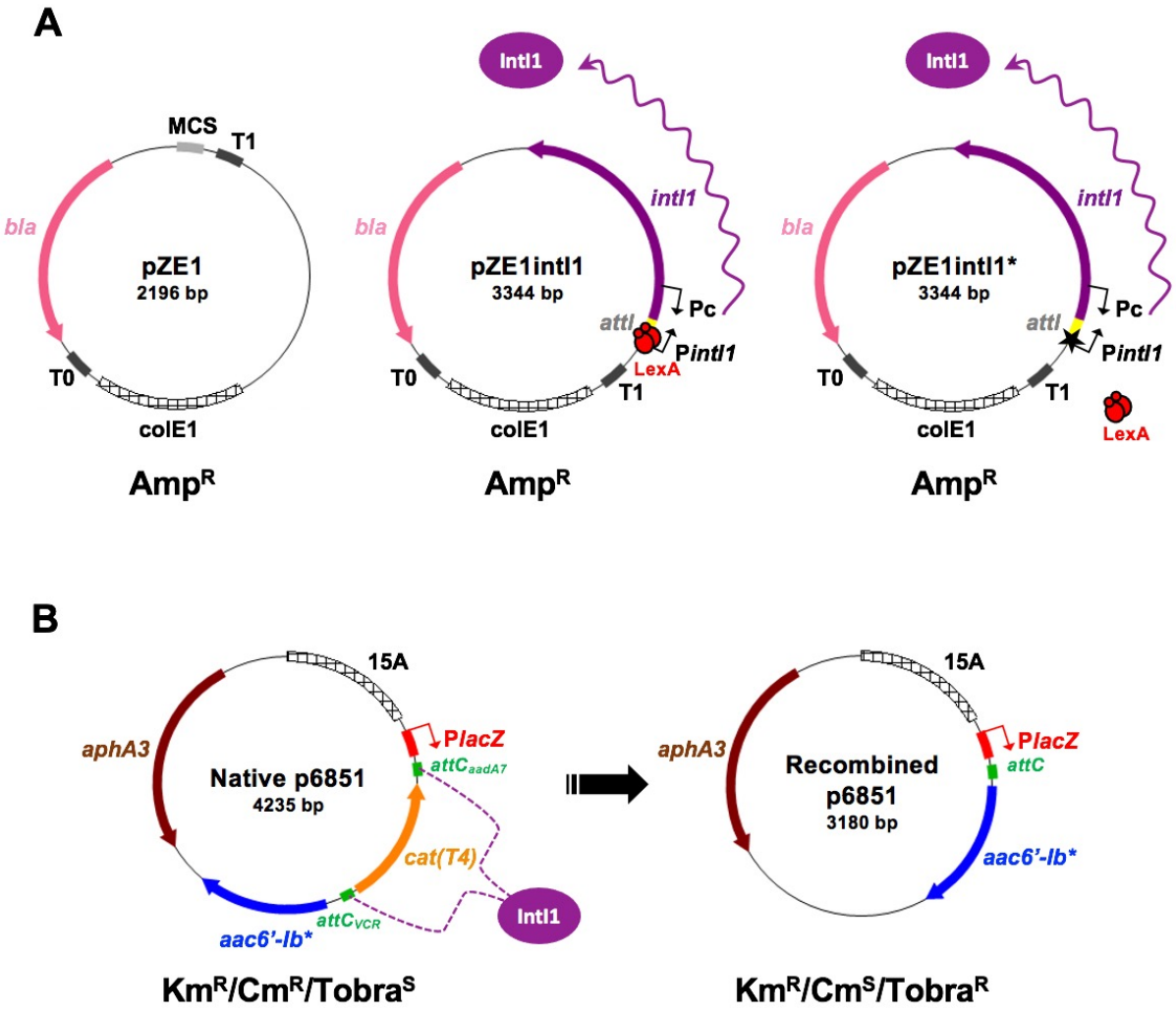

S1 Fig. Recombination activity assay

(A) Description of pZE1 derivative plasmids : plasmid pZE1 (control plasmid that did not carry the *intI1* gene), plasmid pZE1intI1 (expression of *intI1* from the LexA-regulated (SOS-regulated) wild-type integrase promoter P*intI1*), and plasmid pZE1intI1* (constitutive expression of *intI1* from the derepressed P*intI1* carrying mutations in the LexA-binding site (indicated by a black star) inhibiting LexA binding); **(B)** Description of p6851 plasmid before (native p6851) and after recombination (Recombined p6851). Native p6851 carries a constitutively expressed *cat(T4)* gene located between two *attC* sites ($attC_{aadA7}$ and $attC_{VCR2}$), a P*lacZ* promoter upstream of $attC_{aadA7}$ and, and the non-expressed *aac(6')-Ib** gene downstream of $attC_{VCR2}$. Recombined p6851 has lost the $attC_{aadA7}$-*cat(T4)*-$attC_{VCR2}$ structure and allows the constitutive expression of the *aac(6')-Ib** gene from P*lacZ*. For each plasmid, the resistance phenotype is indicated below in bold: *bla*, *aphA3*, *cat(T4)* and *aac(6')-Ib** genes confer resistance to ampicillin (Amp^R), kanamycin (Km^R), chloramphenicol (Cm^R) and tobramycin ($Tobra^R$) respectively.

The integrase activity assay was performed as previously described [24]. *E. coli* MG1656 cells were freshly electroporated simultaneously with native p6851 plasmid and one of the pZE1-derivative. The assay is based on the $IntI1_{R32\_H39}$ integron integrase capability to excise the synthetic cassette *cat(T4)*-$attC_{VCR2}$ (carried on native p6851) by catalysing the specific recombination between the $attC_{aadA7}$ and $attC_{VCR2}$ sites, allowing functional aminoglycoside acetyltransferase-6' synthesis that confers selectable resistance to tobramycin (recombined p6851; expression of *aac(6')-Ib** from P*lacZ* promoter). Integrase activity was determined as the frequency of recombinants calculated as the ratio of the CFU/ml or CFU/g of faeces (respectively for *in vitro* and *in vivo* assays) on LB + Tobra to the CFU/ml or CFU/g of faeces on LB + Amp + Km.