Supplementary Figure S1. Sequences of the integration sites of (a,b) Mboumar-9 (Mbo9) transposition and (c,d) Mos1 transposition.

- Mbo9 with Mg2+ а
  - atttagaaaaataaacaaaTAggggttccgcgcacatttc 1
  - gtggagctccaattcgcccTAtagtgagtcgtattacaat 2
  - gagtaagtagttcgccagtTAatagtttgcgcaacgttgt 3.
  - accgcggtggcggccgctcTAgaactagtggatcccccgg 4
  - $gaccaagtttactcatata{\sf T}{\sf Actttagattgatttaaaac}$ 5.
  - 6. atgaagttttaaatcaatcTAaagtatatatgagtaaact
  - tgcagcccgggggatccacTAgttctagagcggccgcact 7. gttaaaaaatgagctgattTAacaaaaatttaacgcgaat 8.
  - 9.
  - ctcacaattccacaacaTAcgagccggaagcataaagt 10. tcgaggtgccgtaaagcacTAaatcggaaccctaaaggga
  - actacgtgaaccatcacccTAatcaagttttttggggtcg 11.
  - 12. ggagctccaattcgccctaTAgtgagtcgtattacaattc
  - 13. tgagtgagctaactcacatTAattgcgttgcgctcactgc
  - 14. ccctatttgtttatttttcTAaatacattcaaatatgtat
  - 15. tgtctcatgagcggatacaTAtttgaatgtatttagaaaa
  - 16. cagctcattttttaaccaaTAggccgaaatcggcaaaatc

## b Mbo9 with Mn<sup>2+</sup>

- cagaccaagtttactcataTAtactttagattgatttaaa 1
- 2 catgagacaataaccctgaTAaatgcttcaataatattga
- tgcctgactccccgtcgtgTAgataactacgatacgggag 3.
- 4. gtggagctccaattcgcccTAtagtgagtcgtattacaat
- taaatcaatctaaagtataTATgagtaaacttggtctgac 5.
- 6. aggtggcacttttcggggaAAtgtgcgcggaacccctatt
- atttcacacaggaaacagcTAtgaccatgattacgccaag 7.
- 8 agggttccgatttagtgctTTacggcacctcgaccccaaa
- gtgtaaagcctggggtgccTAatgagtgagctaactcaca 9.
- atgcttccggctcgtatgtTGtgtggaattgtgagcggat 10.
- 11. ttcgccctatagtgagtcgTAttacaattcactggccgtc
- agattgatttaaaacttcATTtttaatttaaaaggatcta 12.
- tagaaaagatcaaaggatcTTcttgagatcctttttttct 13.
- 14. tcgtgccagctgcattaatGAatcggccaacgcgcggga
- 15. tatcagggcgatggcccacTAcgtgaaccatcaccctaat

## С Mos1 with Mg2+

- tgttgtgcaaaaagcggtTAgctccttcggtcctccgat 1.
- attagggtgatggttcacgTAgtgggccatcgccctgata 2.
- tagactggatggaggcggaTAaagttgcaggaccacttct 3.
- tcaatattattgaagcattTAtcagggttattgtctcatg 4.
- cattaggcaccccaggcttTAcactttatgcttccggcac 5
- atttagaaaaataaacaaaTAggggttccgcgcacatttc 6.
- gccgcgcttaatgcgccgcTAcagggcgcgtcccattcgc 7
- gggttccgatttagtgcttTAcggcacctcgaccccaaaa 8.
- gtggaacgaaaactcacgtTAagggattttggtcatgaga 9.
- 10. gtcagaccaagtttactcaTAtatactttagattgattta
- 11. ttttctaaatacattcaaaTAtgtatccgctcatgagaca 12.
- ggagctccaattcgccctaTAgtgagtcgtattacaattc
- 13. ctaaagggagcccccgattTAgagcttgacggggaaagcc 14. aacatacgagccggaagcaTAaagtgtaaagcctggggtg
- d Mos with Mn<sup>2+</sup>
  - ttattgtctcatgagcggaTAcatatttgaatgtatttag 1.
  - 2. gaaagccggcgaacgtggcGAgaaaggaaggaagaaagc
  - aaatcggcaaaatcccttaTAaatcaaaagaatagaccga 3.
  - aggtggcacttttcggggaAAtgtgcgcggaacccctatt 4.
  - gataaccgtattaccgcctTTgagtgagctgataccgctc 5.
  - 6 tggaacaagagtccactatTAaagaacgtggactccaacg
  - tcaaatatgtatccgctcaTGagacaataaccctgataaa 7.
  - cgaggtcgacggtatcgaTAAgcttgatatcgaattcctg 8
  - tggagtccacgttctttaaTAgtggactcttgttccaaac 9
  - 10 aacatacgagccggaagcaTAaagtgtaaagcctggggtg
  - 11. gcctaatgagtgagctaacTCacattaattgcgttgcgct
  - 12. gacggccagtgaattgtaaTAcgactcactatagggcgaa
  - 13. gcatcttacggatggcatgACagtaagagaattatgcagt
  - gcgcgttggccgattcattAAtgcagctggcacgacaggt 14.
  - 15. tcaatctaaagtatatatgAGTaaacttggtctgacagtt
  - 16. gctccaattcgccctatagTGagtcgtattacaattcact