**Reaction system and conditions of 5′RACE PCR**

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| **Table S1 First-round reaction system of 5′RACE PCR** |
| Reagent  | Volume (25 µL) |
| 5′RACE template | 0.5 µL |
| 5 GeneRacer outer primer (10 µM)  | 1.0 µL |
| rGST-R1 (10 µM) | 1.0 µL |
| Platinum PCR Supermix High Fidelity  | 22.5 µL |

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| **Table S2 First-round reaction condition of 5′RACE PCR** |
| Initial denaturation  | 94°C 2 min |
| 5 cycles | 94°C 30sec, 72°C 30sec  |
| 5 cycles | 94°C 30sec, 70°C 30sec |
| 25 cycles | 94°C 30sec, 66°C 30sec |

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| **Table S3 Second-round reaction system of 5′RACE PCR** |
| Reagent  | Volume (25 µL)  |
| First round product of 5′RACE PCR  | 0.5 µL |
| 5 GeneRacer Inner primer (10 µM) | 1.0 µL |
| rGST-R2 (10 µM) | 1.0 µL |
| Platinum PCR Supermix High Fidelity  | 22.5 µL |

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| **Table S4 Second-round reaction condition of 5′RACE PCR** |
| Initial denaturation  | 94°C 2 min |
| 30 cycles | 94°C 30sec, 66°C 30sec  |

**Reaction system and conditions of the middle fragment PCR**

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| **Table S5 Reaction system** |
| Reagent  | Volume (50 µL)  |
| Sterilized deionized water  | 1.0 µL  |
| mGST-F (10 µM) | 1.0 µL  |
| mGST-R(10 µM) | 1.0 µL  |
| cDNA template | 2.0 µL  |
| Platinum® PCR SuperMix, High Fidelity  | 45 µL  |

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| **Table S6 Reaction condition**  |
| Initial denaturation | 94°C 2 min  |
| 38 cycles | 94°C 30 sec |
| 62°C 30 sec |
| 68°C 30 sec |

**Reaction system and conditions of 3′RACE PCR**

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| **Table S7 First-round reaction system of 3′RACE PCR** |
| Reagent  | Volume (25 µL)  |
| 3′RACE template | 0.5 µL |
| 3 GeneRacer outer primer (10 µM) | 1.0 µL |
| rGST-F1 (10 µM) | 1.0 µL |
| Platinum PCR Supermix High Fidelity（Invitrogen） | 22.5 µL |

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| **Table S8 First-round reaction condition of 3′RACE PCR** |
| Initial denaturation  | 94°C 2 min |
| 5 cycles | 94°C 30 sec, 72°C 30 sec  |
| 5 cycles | 94°C 30 sec, 70°C 30 sec |
| 25 cycles | 94°C 30 sec, 66°C 30 sec |

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| **Table S9 Second-round reaction system of 3′RACE PCR**  |
| Reagent  | Volume (25 µL)  |
| First round product of 3′RACE PCR | 0.5 µL |
| 3 GeneRacer Inner primer (10 µM) | 1.0 µL |
| rGST-F2 (10 µM) | 1.0 µL |
| Platinum PCR Supermix High Fidelity  | 22.5 µL |

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| **Table S10 Second-round reaction condition of 3′RACE PCR**  |
| Initial denaturation  | 94°C 2 min |
| 30 cycles | 94°C 30 sec, 66°C 30 sec  |