

The Rat ZNF292 Gene in Pituitary Cells Produces Related circular RNAs with Shared Combinations of Exons

PRESENTERS:

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BACKGROUND: Rat pituitary cells express ZNF292 for Growth Hormone Expression. We examined whether circular ZNF292 RNA is also present as found in human cancers.

METHODS

1. Cell Culture
2. RNA Isolation, Reverse Transcription
3. Primer Design and analysis software
4. PCR and electrophoresis
5. Gel elution and cloning
6. Sequencing and analysis
7. RNase R digestion
8. Splice site consensus calculation

RESULTS

Fig. 1A

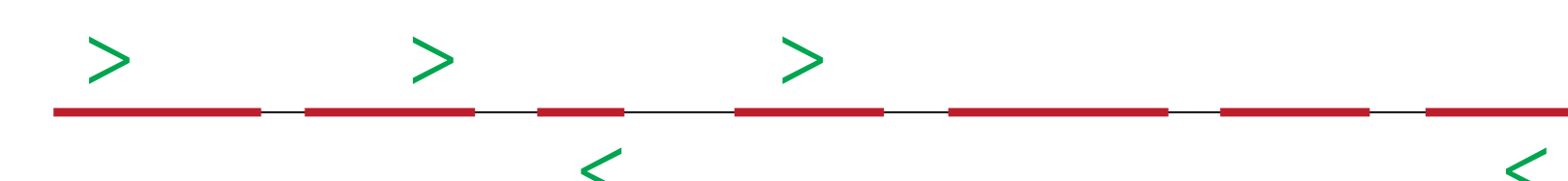


Fig. 1C: Predicted Sizes (bp)

Lane A	Lane B	Lane C	Lane D	Lane E
362	942	128	708	464

Fig. 2A

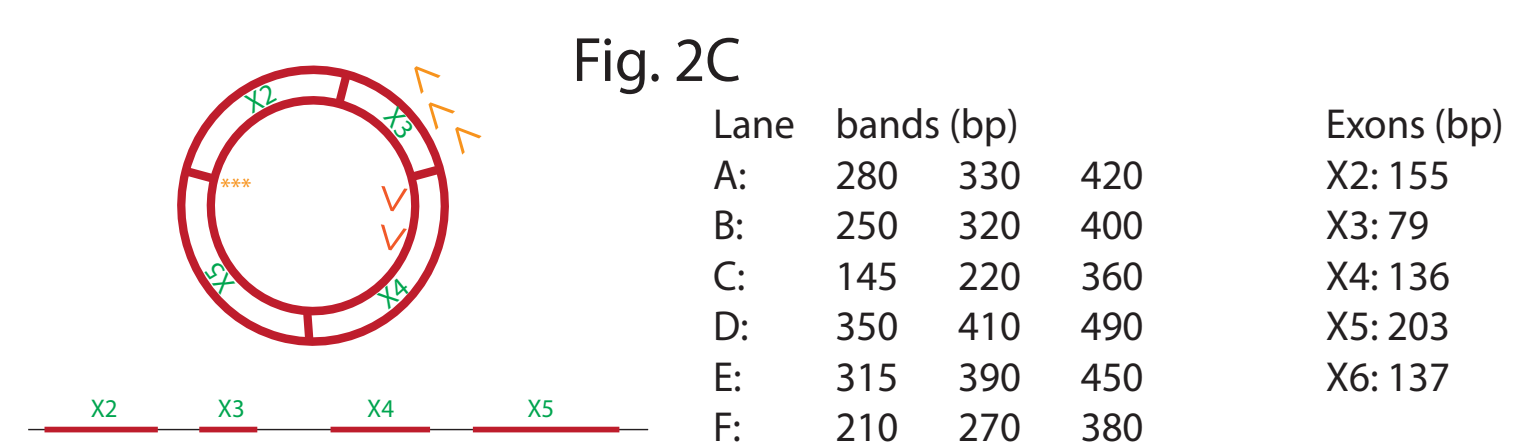
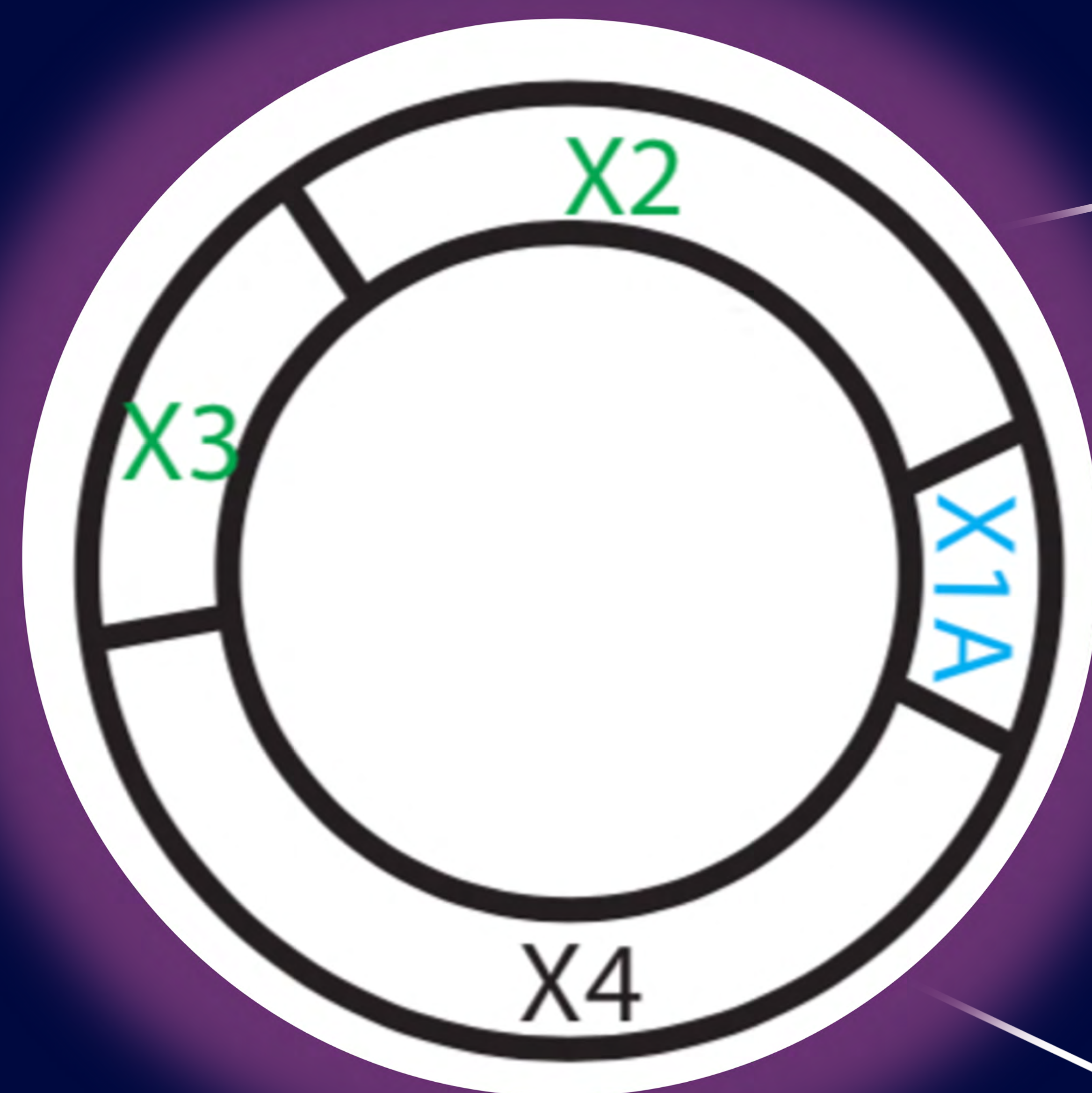


Fig. 3B

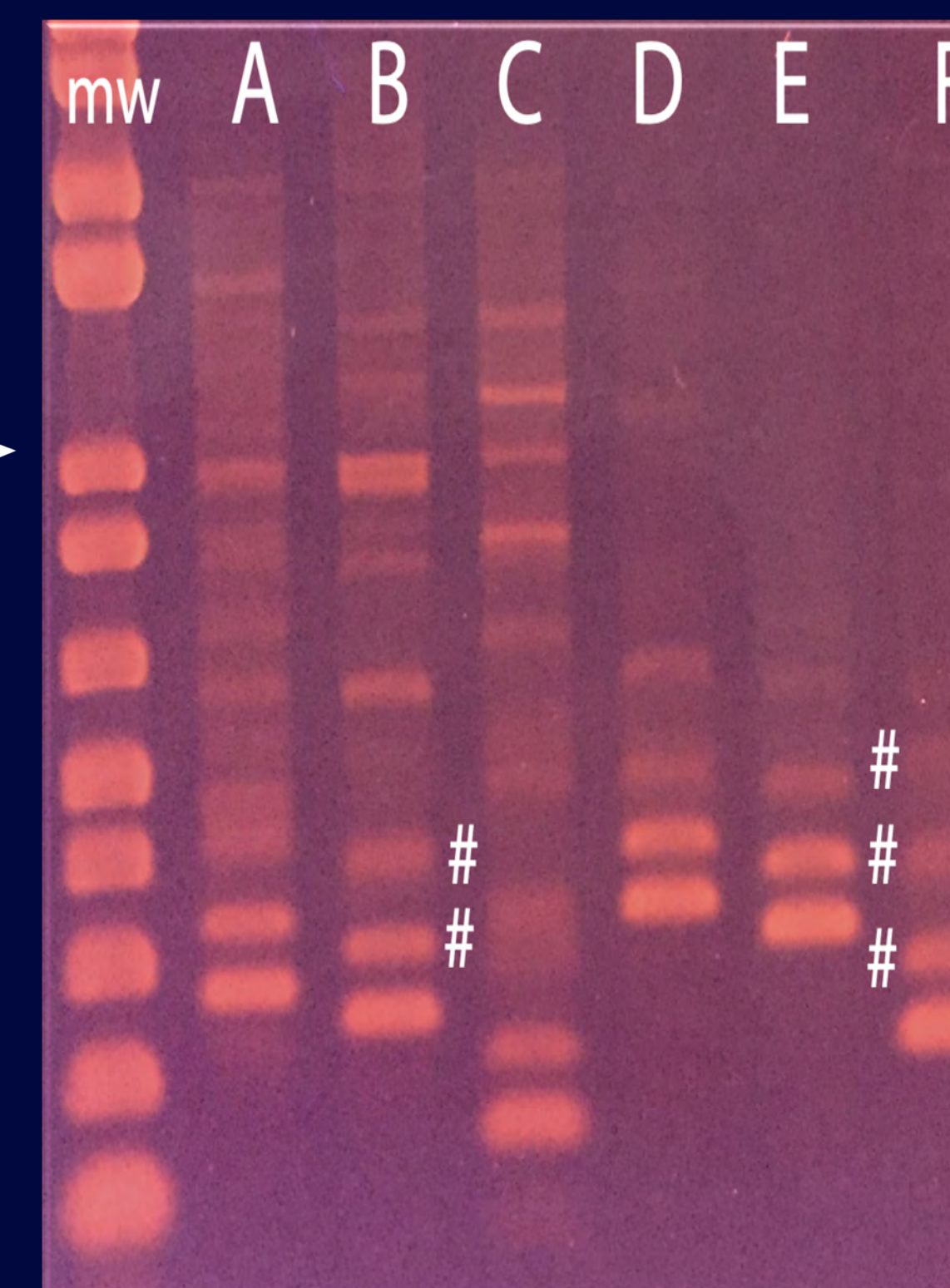
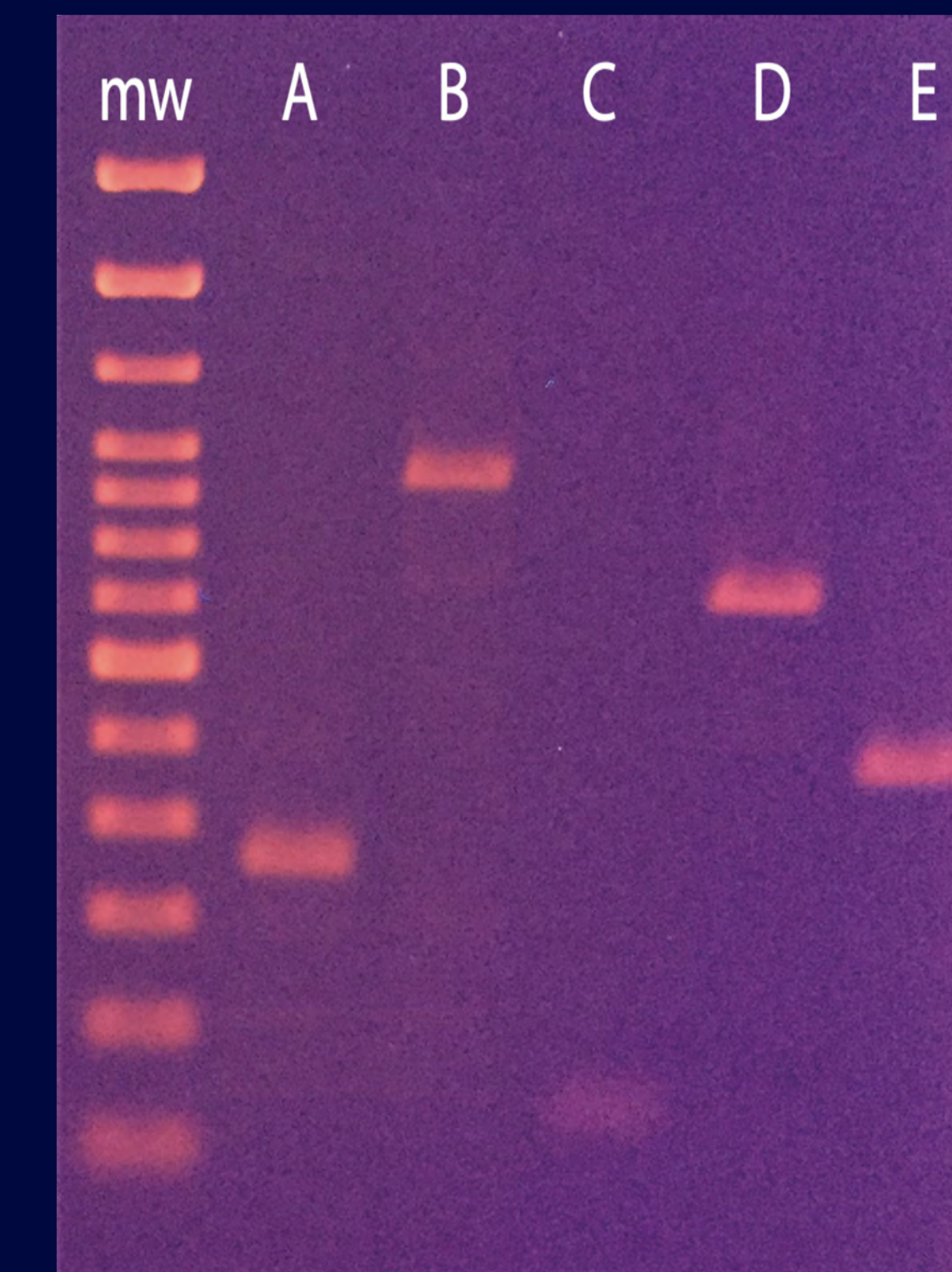
Lane	bands (bp)
7	350 410 490 510

Exon sizes (bp)
X2: 155 X3: 79 X4: 136 X5: 203

Rat ZNF292 gene involved in Growth Hormone Expression Produces Circular RNA.

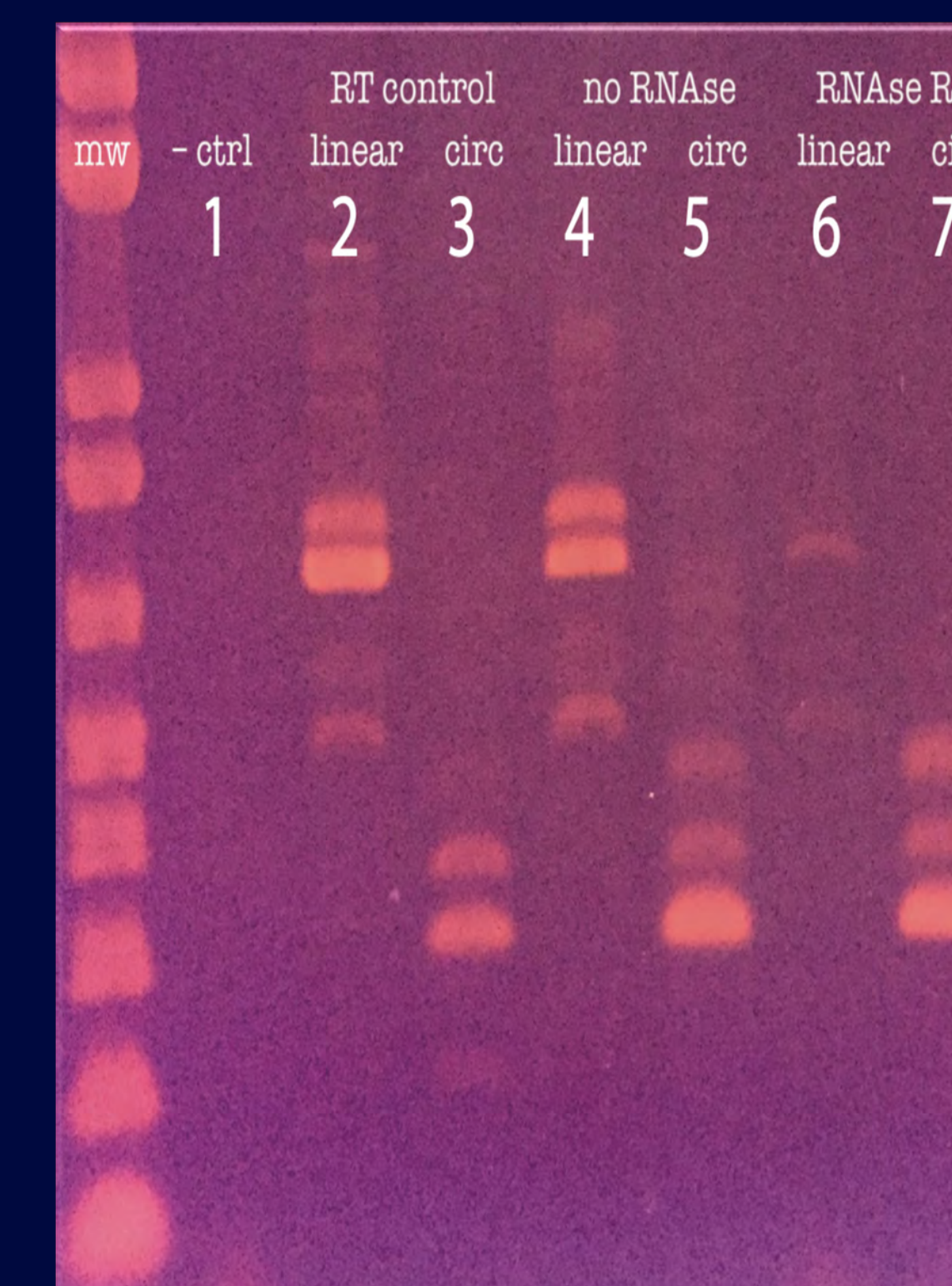


Linear amplification of 5' exons of rat ZNF292



Circular ZNF292 PCR Amplification

Amplification from RNase R-treated MtT/RNA



Take a picture to download the full paper

Fig. 4A

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1  GCGTCCAGAACCAAGGCTACACTTTCACATTCAGAGGTAAGGTATGGTCGAGCTTAAACATACTTTGG
X2 GCGTCCAGAACCAAGGCTACACTTTCACATTCAGAGGTAAGGTATGGTCGAGCTTAAACATACTTTGG

71  ATGGCCACTGTGTATACCTCCAGTAAAGGTAAGGCTCTCTGAAGTTTCCATTCTCTGCATATCAA
X2  ATGGCCACTGTGTATACCTCCAGTAAAGGTAAGGCTCTCTGAAGTTTCCATTCTCTGCATATCAA

141 *****
141 GGAGTGTCTTTCTTTTATCCAGTGGTCTCTGGGAAAGTATAGTGACAGGACAGCGTTTTCCACACCC
X2 GGAGTGT
X4 CTTTCTTTATCCAGTGGTCTCTGGGAAAGTATAGTGACAGGACAGCGTTTTCCACACCC

211 CCGTCTCTGAGCCAGAGTAGCTAGGAAATGCAGCTCAGCTGCCACTCTCCATCGGGTCTCATGGCC
X4 CCGTCTCTGAGCCAGAGTAGCTAGGAAATGCAGCTCAGCTGCCACTCTCCATCGGGTCTCATGGCC

281 TACCTGCACCAAGGCTCAAATGTTCCACTGCTTATCTGATAACTCAACAGGGAGACACAGT
X4 TAC
X3 CTGCACCAAGGCTCAAATGTTCCACTGCTTATCTGATAACTCAACAGGGAGACACAGT
    
```

Fig. 4B

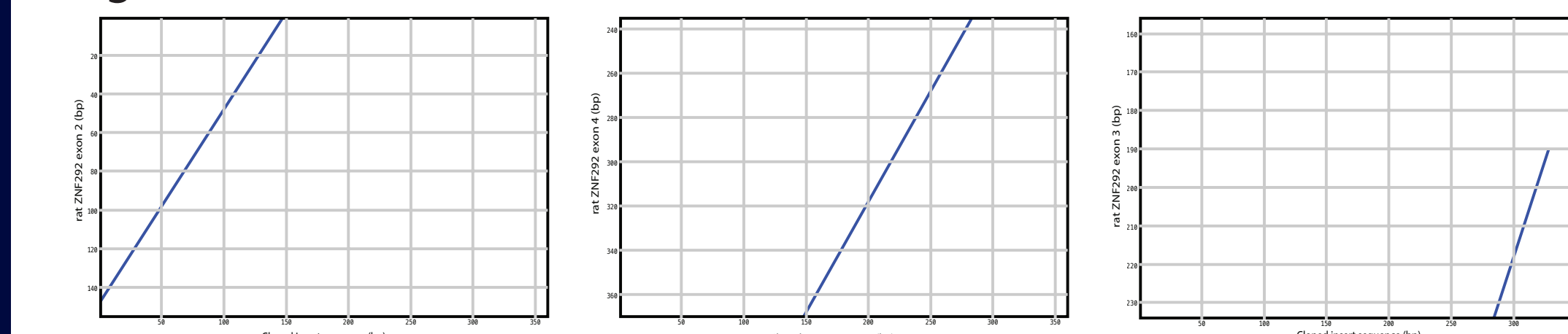


Fig. 5A

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1  ATTATCAGACTGTCTCCCTGTTGAGTTATCAGATAAGCAGTGGGAACAATTCAGACCTTGGTGCAGG 70
1  ATTATCAGACTGTCTCCCTGTTGAGTTATCAGATAAGCAGTGGGAACAATTCAGACCTTGGTGCAGG 70

71  TAGCGCATGAGACCTTGATGGAGAGTGGCAGCTGTGAGCTGCATTTCTAGCTACTCTGGCTCAGGAGAC 140
71  TAGCGCATGAGACCTTGATGGAGAGTGGCAGCTGTGAGCTGCATTTCTAGCTACTCTGGCTCAGGAGAC 140

141 GGGGGTGTGGAAAAACGCTGCTCTGCTCACTATCTTCCAGGAACCACTGGATAAAGAGAAAGACTC 210
141 GGGGGTGTGGAAAAACGCTGCTCTGCTCACTATCTTCCAGGAACCACTGGATAAAGAGAAAG---- 205

211 GTCACAGGCTTGGAAATGAAATTCATTATTTGTAAGACTTCTGAACTCTTCCAGACACTCTTGA 280
206 -----ACACTCTTGA 216

281 ATATGCAGAGAAATGGAAACTTCAGAAGACCTTTACCTTTACTGGAGGTATACACAGTGGCCATCCAA 350
217 ATATGCAGAGAAATGGAAACTTCAGAAGACCTTTACCTTTACTGGAGGTATACACAGTGGCCATCCAA 286

351 AGTTATGTTAAAGCTCGACCATACCTTACCTCTGAATGTGAAAGTGTAGCTTGGTCTTGGAAACGC 416
287 AGTTATGTTAAAGCTCGACCATACCTTACCTCTGAATGTGAAAGTGTAGCTTGGTCTTGGAAACGC 352
    
```

Fig. 5B

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                    GACTCGTCACAGGCTTTGA 19
57541 TAAAATAAAGTTACTATACCATTAACTGCTGAATTCGCTCTTTATAGGACTCGTCACAGGCTTTGA 57610

20  AAATGAAATTTTCATTATTTGTAAGACTCTCTGAATCTTTCCAG 64
57611 AAATGAAATTTTCATTATTTGTAAGACTCTCTGAATCTTTCCAGTGAGATAAAGACCATACAGTTGT 57680
    
```

Fig. 5C

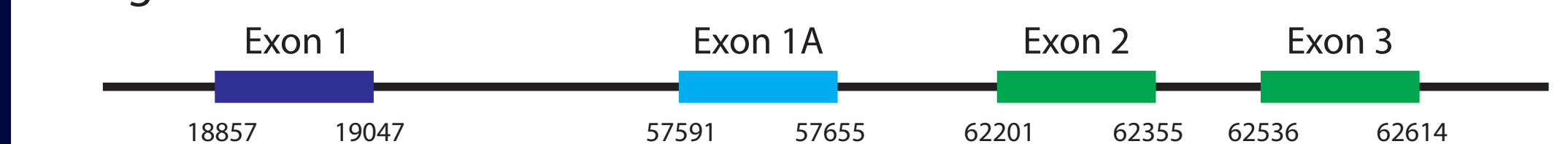


Fig. 7A

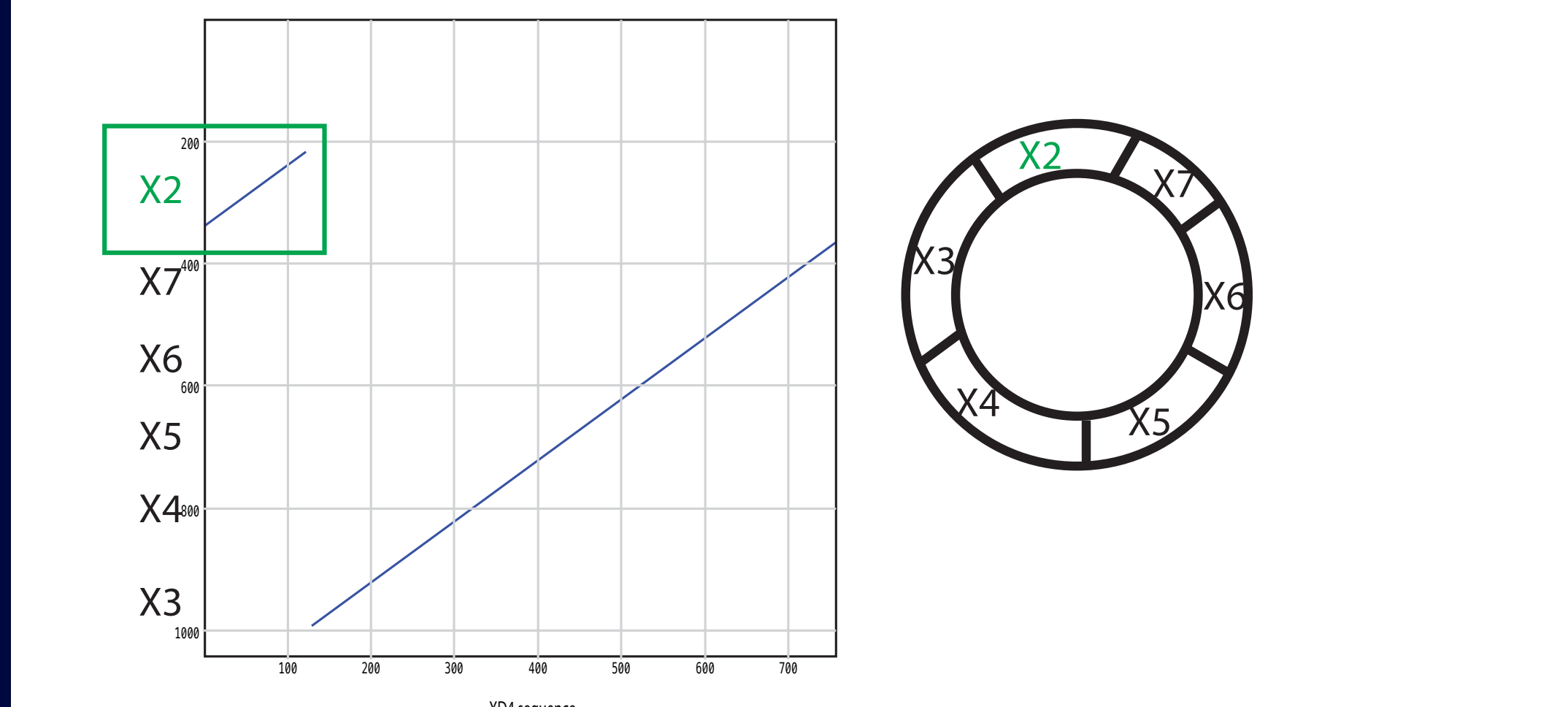


Fig. 7B

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491 GCCTTCTGTCAAGGACCTCAGCAAGGAGATATGTACTGTGCTGGGAGCTCACTTTGTTGGAGTA 560
X7  GGAGCTCACTTTGTTGGAGTA 23

561 AATTGCAGCAAGGTTAGAACCGCTCAGTCAAGTGTACTAGAAAGGTTGCTGCCAATGATGCAGA 630
X7  AATTGCAGCAAGGTTAGAACCGCTCAGTCAAGTGTACTAGAAAGGTTGCTGCCAATGATGCAGA 62
X2  CTGGAATATGCAGA 34

631 GAAATGGAAAACTTCAGAAGACCTTTACCTTTACTGGAGGTATACACAGTGGCCATCAAAGTTATGTT 700
X2  GAAATGGAAAACTTCAGAAGACCTTTACCTTTACTGGAGGTATACACAGTGGCCATCAAAGTTATGTT 84

701 AAAGCTGACCATACCTTACCTCTGAATGTGAAAGTGTAGCTTGGTCTTGGAAACGC 757
X2  AAAGCTGACCATACCTTACCTCTGAATGTGAAAGTGTAGCTTGGTCTTGGAAACGC 149
    
```

Fig. 7C

exons present	# isolated	exons present	# isolated
234	28	1A234	14
2345	2	1A2345	3
23456	2	1A23456	0
234567	1	Total	50

Figure 7. Circular rat ZNF292 RNA identification.

Other Authors:

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