Alinhamento *TcSERPIN* X Pseudogene 3'UTR

```
Pseudogene      ------------------------------------------------------------
TcSERPIN        TCAAGTGTTCAACACGGATTCTCTCCTACGCGGCAAAGCCGCGACGGTCCCATTTCACAA

Pseudogene      ------------------------------------------------------------
TcSERPIN        TATTAAATATTCAGCTGTCCTGCTTAAAGATAACGGTCCTTGTTTCGGCTCGGCTTTGTC

Pseudogene      ------------------------------------------------------------
TcSERPIN        GAAGACTTGAGCTAAAACCTAAGTGAAGTAAAAGGGCTAACTTTGTTCTCGACTTGTTTG

Pseudogene      ------------------------------------------------------------
TcSERPIN        TGTTTTAGATTCCGACAATGGATCTCCGTGAATCGATCAGGAGGCAAACCGACGTAACCT

Pseudogene      ------------------------------------------------------------
TcSERPIN        TAAGCCTGACGAAGCACGTGCTCCAGACCGAAGCCAAGGACTCCAACCTTGCCTTCTCGC

Pseudogene      ------------------------------------------------------------
TcSERPIN        CGCTGTCGATCCACGTGGTGCTCAGCATGATCGCGGCTGGCTCTACGGGCCCAACCCTCG

Pseudogene      ------------------------------------------------------------
TcSERPIN        ACCAGCTCCTCTCTTTCCTCAAGTCAGCATCCAACGACCACCTCGGCTCCTTCTCCTCCG

Pseudogene      ------------------------------------------------------------
TcSERPIN        AGCTCGTTTCCGTTGTGTTCGCCGACGGTAGCCCCGCGGGTGGGCCCCGGTTGTCGTTTG

Pseudogene      ------------------------------------------------------------
TcSERPIN        CCAACGGGGTTTGGATCGACAAGTCTCTCCCTCTCAAGCCTTCTTTCAAACAGGTTGTGG

Pseudogene      ------------------------------------------------------------
TcSERPIN        ATAATGTCTACAAGGCTGCTTCTAATCAAGTCGATTTCCAAACCAAGGTAGTAGCTTCTT

Pseudogene      ------------------------------------------------------------
TcSERPIN        TATTTGGATTCTGATGTTTGTCTTCCGATCGCTGCTTTTAATATGTCTCTGTTCTTTCCC

Pseudogene      ------------------------------------------------------------
TcSERPIN        TTCAAATGTAGCTGGGATCTTAACACGTTGCAAAACTGGATATTTTTCAAGTTTCAAATC

Pseudogene      ------------------------------------------------------------
TcSERPIN        TATGGGGATCCAGTGACCCCAATTGTTTCCCAAATCTTATAGATGTAGCCATGCCCATAT

Pseudogene      ------------------------------------------------------------
TcSERPIN        TTTGAAAATAAGAATTTCAACACAGTACTTATGAGAAATAGTACCTTTTTTTTTTTGAAT

Pseudogene      ------------------------------------------------------------
TcSERPIN        TTTTTTTATAGATAGTACTTATCAAGCATTCCTTGAAACTGTAGATAATTAAGTATAAGC

Pseudogene      ------------------------------------------------------------
TcSERPIN        TACTTATAGGAAGGAATATATGAACTAATTCCTGTACCACTGATGTATAGGTAGTACATA

Pseudogene      ------------------------------------------------------------
TcSERPIN        AGTTAATGATATGTTTATTGATTATATTGGTAGCATTCACTTGCCATTTGTTTTTTAACT

Pseudogene      ------------------------------------------------------------
TcSERPIN        TCTGGGTTAAATGAATATGTTAACTGTTCTTCTTCTTTTTTTTAATGTTGTTGGTATCTT

Pseudogene      ------------ATGAGGCA---------------TGGGCA---------TACAGTCCAC
TcSERPIN        TGAAGGCTGTTCAAGTGGCTGGTGAAGTGAATTTGTGGGCAGAAAAGGAGACCAGTGGTC
```

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                          *:*:***:                ******         :.****  :*

Pseudogene      A-----AACAA---AAGCCCCCA---TCGG----------------CCCACTCTAAGC--
TcSERPIN        TTATTAAACAACTTCTTCCGCCAGGGTCGGTTGATGGTTCAACCAGGCTTATATTTGCTA
                :     *****   .: ** ***   ****                  * :.*.*::**

Pseudogene      ------TTAACTCCAACGCGGCAAAGC-AGCAACGTCCTTCCTTCCCTCTTTAGAACAAC
TcSERPIN        ATGCACTTTACTTCAAAGGAGCTTGGAATGAAACGTTCG---ATGCGTCAA--AAACAAA
                      **:*** ***.* .**::.*. :*.***** *    :* * **::  .*****.

Pseudogene      AGTGCTTTGCTCTTCACTCTC-TGCTGGTGAACTCTAT---CGCATCT---AT----AGC
TcSERPIN        AGAAAATG--ACTTCTACCTTGTAAATGGAAGCTCTGTTAAGGCACCTTTTATGACCAGC
                **:..:*   :****:. **  *..: * .*.****.*    *** **   **    ***

Pseudogene      CTA----AGCAAGGCAATGTTCTTGCTTGGAGTTGAGATTTGCTTTTAGTTTCC-GAACA
TcSERPIN        CAAAAGAAGCAAGCCGTT----------GGT---GCGTA----TGATGGTTTCAAAGTCC
                *:*    ****** *.:*          **:   *.*::    * :*.*****. ..:*.

Pseudogene      ATGGACCTCCGTGAATCGATCAGATGGAGATAACCGTCGGTTCTCCTTGTACATCTGTCT
TcSERPIN        TAGGGCTTCCGTAT--AAACAAGGTGGAGATAAGCGTCGTTTCTCCATGTATTTCTTTCT
                ::**.* *****.:  ..* .**.********* ***** ******:**** :*** ***

Pseudogene      TCCAGAGGGAAAAGATGGCATGCCAAACTTTGGTAGAGTAAGCGAGTTCCGAATCTGGTT
TcSERPIN        TCCAGATGCAAAAGATGGTCTGCCG-GCTTTGGTAGAGAAAGTGAGTTCTGAATCTGGTT
                ****** * ********* .****. .***********:*** ****** **********

Pseudogene      TCTTAGAACGCCACCTTCCATCCATCTAGAACAGTAGAAGTTGGTGAATTCAGGATCCCA
TcSERPIN        TCTTGGAACGCCACCTGCCAT----ATGAACCAGTTAAAGTGGGTGAATTCAGGATTCCA
                ****.*********** ****    .*..*.****:.**** ************** ***

Pseudogene      AGGCTCAAGATTTCATTCTGGTTCGAAGCTTCGGAAGTTCTCAAAGGAAGCTT---CG--
TcSERPIN        AGATTCAAGATTTCATTTGGATTCGAAGCTTCTGAAGTTCTGAAGAGATTAGGACTTGTA
                **. *************  *.*********** ******** **..**: .      *

Pseudogene      --GAGGTTCTCAAAGGAAGCTTCGGAGGTCTCAAAGGAATTAATGTCTGATTCGACTGTG
TcSERPIN        TTGCCTTTCTCTGGTGA-----AGGAGGTTTGAC----AGAGATGGTGGATTCGCCTTTG
                  *.  *****:.. **     .****** * *.    * :.***   ******.** **

Pseudogene      GGTCAGAAACC-------------------------------------------------
TcSERPIN        GGTCAAAGCCTGTATGTTTCAAATATATTCCATAAATCTTTCATTGAAGTTAATGAAGAA
                *****.*..*

Pseudogene      ----TACAGGCCGCTGCTGTCACAGCAGGTCTCTACAAACTCTTCTGT--TCA--T---T
TcSERPIN        GGGACAGAAGCTGCAGCTGCTTCTGCTGGTGTTATAAGACTCAGGGGTGTGCTTGTTGAG
                     * *.** **:****  :*:**:*** * ::.*.****:   **   *:  *

Pseudogene      GCAAATGACTTTGGGGCTGCTGACCATCCTTTCCTTTTCCTGATCAGAGAAGATGTGACT
TcSERPIN        GAAAAAATAGATTTTGTGGCTGACCATCCATTCCTCTTCCTGATCAGGGAAGATGTGACT
                *.***:.:. :*   *  ***********:***** ***********.************

Pseudogene      GGCGTTGTTCTGTTCATAGGGGCATGTGCTCAATCCTCTTGAAAGCTGAACCAGCCTGCG
TcSERPIN        GGAGTTGTTCTGTTCATTG-GGCACGTCCTCAATCCTCTTGAAAGTTGATAAATCT-GTT
                **.**************:* **** ** ***************** ***:..* *  *

Pseudogene      ATATACC-------GGAGAATTCGTATGAAT-G--GATCTTTCCTAGCACGTGGTAGAAG
TcSERPIN        CTGATCCTTATGTAGGAAAATGTGTACGAGGAGGATAACTAGCTGAACAAATGGAAGA--
                .*.::**       ***.***  *** **.  *   *:**: *  *.**..***:***

Pseudogene      ATTGTGGTAAAATATAACCATCTGATTAGTTTGCAGTGTTTTCCAAATGCCTGAAA----
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```
TcSERPIN        TTTGTGGTTATT-TTAAGCATCCGGTTGATGTGTTGTAGTTTGCATATGCCAGAGCCTAG
                :*******:*:: :*** **** *.**..* ** :**. *** **:*****:**..

Pseudogene      --CCC-CAATGTGGCTTAATATTCTATA----GT-------TTAAACAGGTATATAACCT
TcSERPIN        TGCCGCTTAAGTGGTTGTGTAGTCTAACCCGTGTGACTTATGCTTTCTTGTAAGTTTCCT
                  **   :*:**** * :.** ****:.    **          :::*: ***:.*::***

Pseudogene      TTTAAATAAAAAGCTGGATCTGTACT---GATCCAATGCAA--------ATA------TT
TcSERPIN        TTTCGTTT----CCTATGTCTTTGCTGTTGATCCCAGTAGGTTATAACAATAAACTACTT
                ***..:*:     **. .*** *.**   *****.*  ...        ***      **

Pseudogene      CTTTTTCCCTCTTC-TCTTCAGATTCAG-----TGTACATGTAATATAAAGAGAG-----
TcSERPIN        GTTGTTCCCATTAGAAATACATTCTCATGGCTTTTGACTTGTTGAATACTTAAAGCTTAG
                 ** *****: *:  :.*:** : ***      *  **:***:.:***.: *.**

Pseudogene      -TCAAC--AGTA-
TcSERPIN        CTCTCCTCTCTTA
                 **:.*  : *:
```

Alinhamento *TcSERPIN* X Pseudogene 5'UTR

```
Pseudogene      ------------------------------------------------------------
TcSERPIN        TCAAGTGTTCAACACGGATTCTCTCCTACGCGGCAAAGCCGCGACGGTCCCATTTCACAA

Pseudogene      ------------------------------------------------------------
TcSERPIN        TATTAAATATTCAGCTGTCCTGCTTAAAGATAACGGTCCTTGTTTCGGCTCGGCTTTGTC

Pseudogene      ------------------------------------------------------------
TcSERPIN        GAAGACTTGAGCTAAAACCTAAGTGAAGTAAAAGGGCTAACTTTGTTCTCGACTTGTTTG

Pseudogene      -----------------ATGGATGTTCGTGAAATGATCAGGAGCCAGACCGACGTCGCTC
TcSERPIN        TGTTTTAGATTCCGACAATGGATCTCCGTGAATCGATCAGGAGGCAAACCGACGTAACCT
                                  ****** * ******: ********* **.********..*

Pseudogene      TGAGCCTCACGAAGCACGTTCTCACAACCCAAGCCGAGGTGGACTCGAACCTGGTGTTCC
TcSERPIN        TAAGCCTGACGAAGCACGTGCTCCAGACCGAAGCCAAG---GACTCCAACCTTGCCTTCT
                *.***** ********** ***...*** *****.**   ***** ***** *  ***

Pseudogene      CGCCGCTGTCTGCACAAGTGGTGCTGAGCGCCATCGCCGTTGGCTCAAATGGTGCCAACC
TcSERPIN        CGCCGCTGTCGATCCACGTGGTGCTCAGCATGATCGCGGCTGGCTCTACGGGCCCAACCC
                ********** . .**.******** ***.  ***** * ******:*. **  *.*.**

Pseudogene      TTGGCCAGCTCCTCTGCTTCCTCAAGTCGACGTCCAACGACCACCTCAGCTCCTTCTACT
TcSERPIN        TCGACCAGCTCCTCTCTTTCCTCAAGTCAGCATCCAACGACCACCTCGGCTCCTTCTCCT
                * *.***********  ***********..*.***************.*********.**

Pseudogene      CCGAGATCATTTCCGCGGTCTTTGCAGACGGCAGCCCGGTGGGTGGGCCCCGCTTGTCTT
TcSERPIN        CCGAGCTCGTTTCCGTTGTGTTCGCCGACGGTAGCCCCGCGGGTGGGCCCCGGTTGTCGT
                *****.**.******  ** ** **.***** ***** * ************ ***** *

Pseudogene      TCTCTAATGGTGTTTGGGTCGACAAGTCTCTCCCTCTCAAGCACTCCTTTAGACAGATAA
TcSERPIN        TTGCCAACGGGGTTTGGATCGACAAGTCTCTCCCTCTCAAGCCTTCTTTCAAACAGGTTG
                *  * ** ** ******.************************. ** ** *.****.*:.

Pseudogene      TGAAGAATGTCTACAAGGCTGCTTCCAATCAAGTTGATTTCCAAACCGAGGTATTATATT
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```
TcSERPIN        TGGATAATGTCTACAAGGCTGCTTCTAATCAAGTCGATTTCCAAACCAAGGTAGTAGCTT
                **.* ******************** ******** ************.***** ** .**

Pseudogene      T-------GC--------------------TCTCC--------------TCTGTAAT--
TcSERPIN        CTTTATTTGGATTCTGATGTTTGTCTTCCGATCGCTGCTTTTAATATGTCTCTGTTCTTT
                        *                        ** *               *****:.*

Pseudogene      ---------TTTTGT-----------------------------------TTGTTTTTA
TcSERPIN        CCCTTCAAATGTAGCTGGGATCTTAACACGTTGCAAAACTGGATATTTTTCAAGTTTCAA
                         * *:*                                      ::**** :*

Pseudogene      AACTAT-------------------------------------------------GATCT
TcSERPIN        ATCTATGGGGATCCAGTGACCCCAATTGTTTCCCAAATCTTATAGATGTAGCCATGCCCA
                *:****                                                  *. *:

Pseudogene      TATCTTGTTTAGTATATTTTCTATTCG------------ATTTTCCCTTTTTTTTT---
TcSERPIN        TATTTTGAAAATAAGAATTTCAACACAGTACTTATGAGAAATAGTACCTTTTTTTTTTTG
                *** ***:::* :* *:****:* :*.             **: *.***********

Pseudogene      ------------------------------------------------------------
TcSERPIN        AATTTTTTTTATAGATAGTACTTATCAAGCATTCCTTGAAACTGTAGATAATTAAGTATA


Pseudogene      ----TCTATC-----------------------------------------TGGGAA----
TcSERPIN        AGCTACTTATAGGAAGGAATATATGAACTAATTCCTGTACCACTGATGTATAGGTAGTAC
                    :**::                                          *.**:*

Pseudogene      ------------------------------------ATTCTTATGCCAATTAACTTT--
TcSERPIN        ATAAGTTAATGATATGTTTATTGATTATATTGGTAGCATTCACTTGCCATTTGTTTTTTA
                                                   ****: :*****:**.: ***

Pseudogene      ---------------------------------TTTTGTTTGTCATGTTTTTAGTTT
TcSERPIN        ACTTCTGGGTTAAATGAATATGTTAACTGTTCTTCTTCTTTTTTTTAATGTTGTTGGTAT
                                                * ** *** *.***** **.**:*

Pseudogene      CTTTGAAGGCTGATCTCATGAGGAGTGAAGTGAACTTATGGGCGGAAAAGGAGACGAATG
TcSERPIN        CTTTGAAGGCTGTTCAAGTGGCTGGTGAAGTGAATTTGTGGGCAGAAAAGGAGACCAGTG
                ************:**:..**.  .********** **.*****.*********** *.**

Pseudogene      GTCTTATTAAACAAGTTCTTCCTCCAGGGTCTGTGAACCGTTTGACCAGGCTCATATTTG
TcSERPIN        GTCTTATTAAACAACTTCTTCCGCCAGGGTCGGTTGATGGTTCAACCAGGCTTATATTTG
                ************** ******* ******** ** .*  *** .******** *******

Pseudogene      CTAATGCACTTTACTTCAAAGGAGTTTGGAATGAAAAATTCGATTCATTGAAAACAAAAG
TcSERPIN        CTAATGCACTTTACTTCAAAGGAGCTTGGAATGAAACGTTCGATGCGTCAAAAACAAAAG
                ************************ ***********..****** *.* .**********

Pseudogene      ACCATGACTTCTATCTTACAAATGGAAGCTCTGTTCAAGTGCCCTTTATGACCAGCAAGA
TcSERPIN        AAAATGACTTCTACCTTGTAAATGGAAGCTCTGTTAAGGCACCTTTTATGACCAGCCAAA
                *..********** ***. ****************.*.* .** ************.*.*

Pseudogene      AGAAGCAGTACATTCGCGCCTATGATGGTTTCAAAGTGCTCGGACTTCCTTATAAGCAAG
TcSERPIN        AGAAGCAAGCCGTTGGTGCGTATGATGGTTTCAAAGTCCTAGGGCTTCCGTATAAACAAG
                *******. .*.** * ** ***************** **.**.***** *****.****

Pseudogene      GTGGAGATATCCGCCGTTTCACCATGTACA----TCTTCCAGATGCAAGAGATGGGTTGA
TcSERPIN        GTGGAGATAAGCGTCGTTTCTCCATGTATTTCTTTCTTCCAGATGCAAAAGATGGTCTGC
                *********: ** ******:******* :    **************.******  **.
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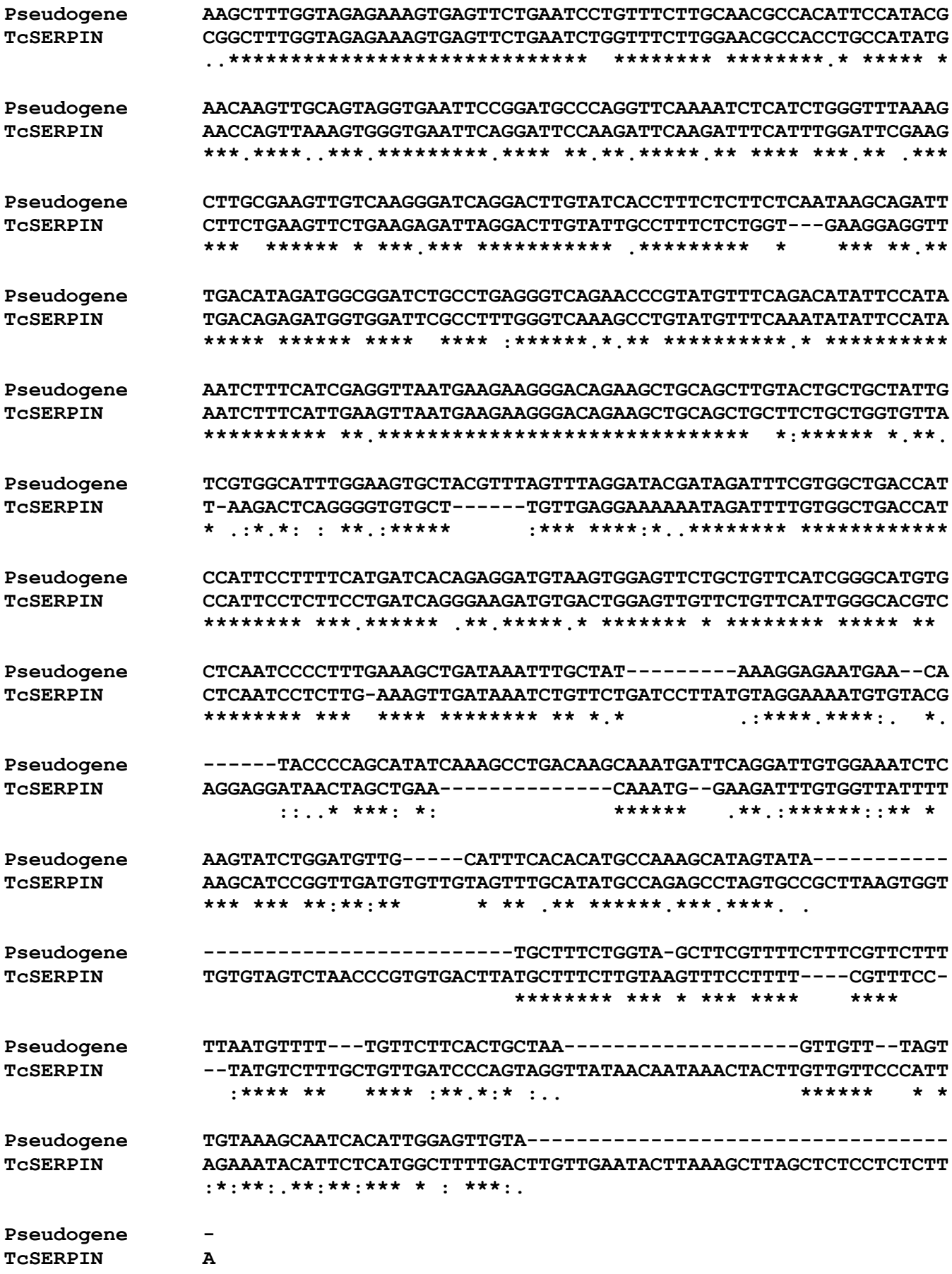

Supplementary Figure 1. Alignment of the gene regions of *TcSERPIN* and flanking pseudogenes at 3' and 5'UTR.