

1/15

FIG.1

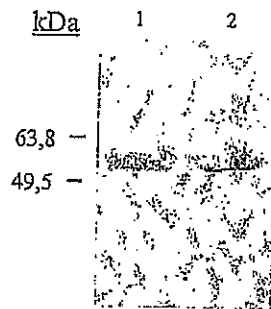


FIG.2

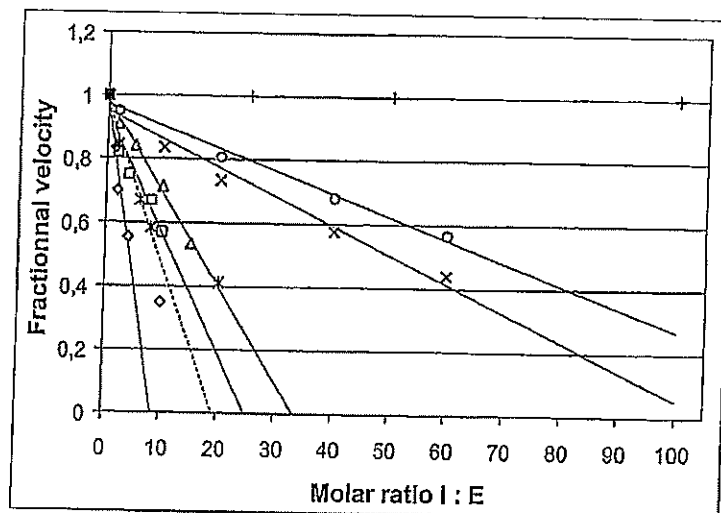


FIG. 3

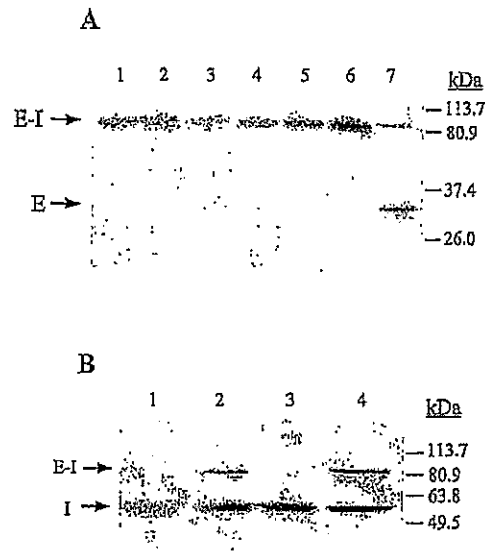
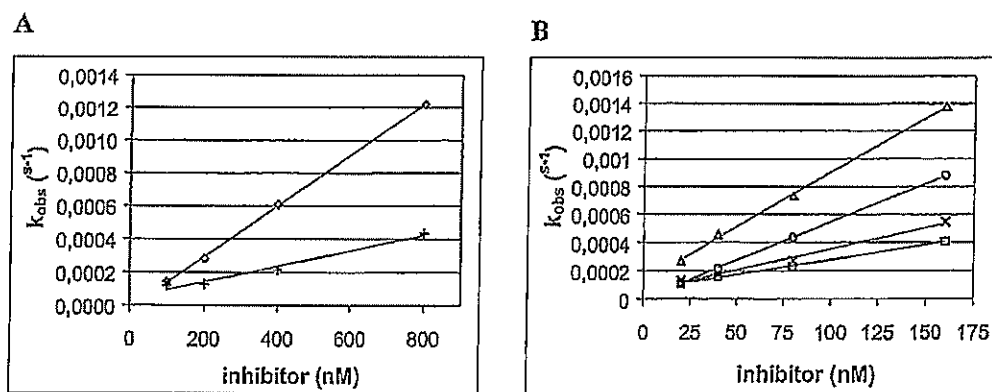


FIG. 4



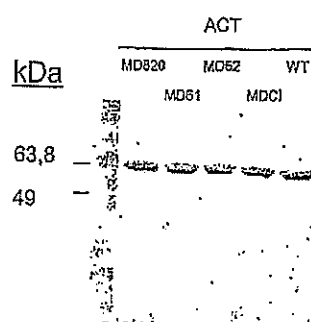


FIG. 6

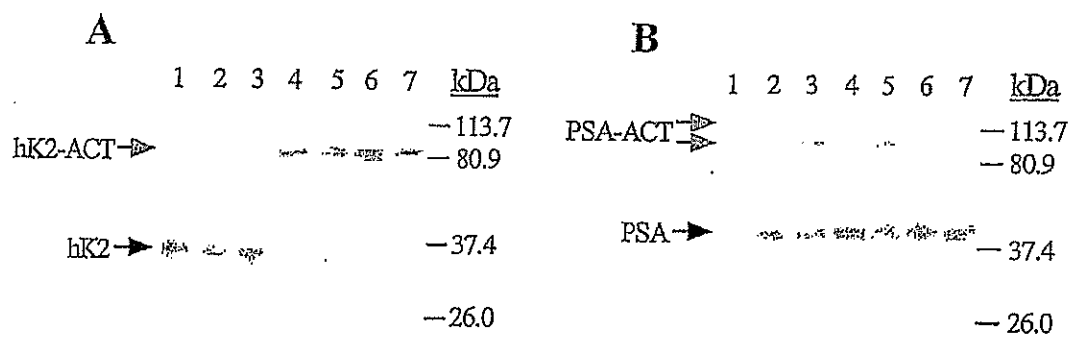


FIG. 7A

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variants : MD 820

SEQ ID N°1

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCCTTGACGAGGAGA
 ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
 GGACTTCGCTTTTCAAGCAGTTAGTCTGAAGGCCCTGATAAGAATGTCATCTTC
 TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCTGTCTCTGGGGGCCCATATAACCACCTGA
 CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
 CTTCACGACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
 GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACCGGAGGATGCCAAGAGGCTGT
 ATGGCTCCGAGGCCTTTGCCACTGACTTTTCAAGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
 CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
 ATGATGGTCTTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
 ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAAATGGTGCCCATGATGAGTTT
 GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
 TACACAGGCAATGCCAGCGCACTCTTCATCTCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
 CCATGCTGCTCCAGAGACCTGAAGCGGTGGAGAGACTCTCTGGAGTTTCAAGAGATAGGTGA
 GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
 GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGCCAGGAACCTAG
 CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGATGTTATTTGAGGAGGGCACAGAAGCATCTGC
 TGCCACCGCGGTCAAATCACCTCCGTTCTCGAGCAGTGGAGACGCGTACCATTGTGCGTTTC
 AACAGGCCCTTCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
 TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variants : MD 820

SEQ ID N°2

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
 SPLSISTALAFSLGAHNTTLTEILKGLKFNLTESEAEIHQS FQHLLRTL NQSSDELQLSMGN
 AMFVKEQLSLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNTRGKITDLIKDLSQT
 MMVLVNYIFFKAKWEMPFDPQDTHQSRFYLSKKKWVMPMSLHHLTIPYFRDEELSCTVVELK
 YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISR DYNLNDILLQL
 GIEEAFTSKADLSGITGARNLAVSQVVHKA VLDVFEEGTEASAATAVKITLRSRAVETRTRIVRF
 NRPFMLIIVPTDTQNIFFMSKVTNPKQA*

FIG. 7B

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 62

SEQ ID N°3

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTTTCAGCCTGTACAAGCAGTTAGTCTGAAGGCCCTTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGCCCTTCTGTCTCTGGGGGGCCATAATACCACCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTTCACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTTCAAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTGAGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAATCACCAGGAGTCTATCAGATGTGGAGACCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant : MD 62

SEQ ID N°4

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNTTLTEILKGLKFNLTETSEAEIHQS FQHLLRTL NQSSDELQLSMGN
AMFVKEQLSLLDRTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNTRGKITDLIKDLD SQT
MMVLVNYIFFKAKWEMPFDPDQTHQSRFYLSKKKWMVPMMSLHHLTIPYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
GIEEAFTSKADLSGITGARNLAVSQVVHKAVIDVFEEGTEASAATAVKITR~~RS~~SIDVETRTIVRF
NRPF~~LM~~IIVPTDTQNIFFMSKVTNPKQA*

FIG. 7C

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 83

SEQ ID N°5

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCCTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTTACGCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCCTGTCTCTGGGGGGCCATAATACCACCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTTCACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTTCAAGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCCTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGTCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCAGAGACCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTACCAGCAAGGCTGACCTGTGAGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAATCAGGGGGAGATCTGAGTTAGTGGAGACGCGTACCATTTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant : MD 83

SEQ ID N°6

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNTTLTEILKGLKFNLTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLDSQT
MMVLVNYIFFKAKWEMPFDPQDTHQSRFYLSKKKWMVPMMSLHHLTIPIYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
GIEEFTSKADLSGITGARNLAVSQVVHKAULDVFEEGTEASAATAVKIRGRSLVETRTIVRF
NRPFMLIIVPTDTQNIFFMSKVTNPKQA*

FIG. 7D

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 67

SEQ ID N°7

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACCTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTTACGCTGTACAAGCAGTTAGTCCTGAAGGCCCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCTGTCTCTGGGGGGCCATAATACCACCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCCCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGGAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTCGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTTCAAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTACCAGCAAGGCTGACCTGTGCTGATGATTTGAGGAGGGCACAGAAGCATCTGC
CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCAAGCTTAGAACAACATTAGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCAAGCAAGCCTAA

Protein Sequence ACT variant: MD 67

SEQ ID N°8

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNTTLTEILKGLKFNLTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLLDRTFEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNTRGKITDLIKDLDSQT
MMVLVNIYIFFKAKWEMPFDPQDTHQSRFYLSKKKWVMPMMSLHHLTIPIYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFRBIGELYLPKFSISRDNLDILLQL
GIEEAFTSKADLSGITGARNLAVSQVVHKAVIDVFEEGTEASAATAVKIKLRITLVETRTIVRF
NRPFMIIVPTDTQNIFFMSKVTNPKQA*

FIG. 7E

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 61

SEQ ID N°9

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACCTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTTCAAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGCCCTTCTGTCTCTGGGGGCCCATATAACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTTCAAGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTGCTGGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCTCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCCAGAGACCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTACCAGCAAGGCTGACCTGTGAGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCCAGGTGGTCCATAAGGCTGTGCTGATGTATTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCATGACAAGATCTAAACGAGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant : MD 61

SEQ ID N°10

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNTTLTEILKGLKFNLTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLDDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNTRGKITDLIKDLDST
MMVLVNYIFFKAKWEMPFDPDQTHQSRFYLSKKKWVMVPMMSLHHLTIPYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
GIEEFTSKADLSGITGARNLAVSQVVHKAVLDVFEEGTEASAATAVKIMTRSNVETRTIVRF
NRPFMLIIVPTDTQNIFFMSKVTNPKQA*

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FIG. 7F

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variants : MD 518

SEQ ID N°11

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACCTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCCTGTCTCTGGGGGCCCATATAACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTGGCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAC TAGGGGGAAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTCGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCAGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCACCGAGCGTGTCTCGCCCGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTCATGAGCAAAG
TCACCAATCCAAGCAAGCCTAA

Protein Sequence ACT variants: MD 518

SEQ ID N°12

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNTTLTEILKGLKFNL TETSEAEIHQS FQHLLRTL NQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNTRGKITDLIKDLDLSQT
MMVLVNYIFFKAKWEMPFDPDQTHQSRFYLSKKKWVMPMMSLHHLTI PYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
GIEEFTSKADLSGITGARNLAVSQVVHKA VLDVFEEGTEASAATAVKITERVSEVETRITVRF
NRPFMLIIVPTDTQNIFFMSKVTPKQA*

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FIG. 7G

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variants : MDCI

SEQ ID N°13

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACCTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCTTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCTGTCTCTGGGGGCCCATAAATACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCTCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCAGAGACCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCACCTTTAGATCTGCATTAGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variants: MD C1

SEQ ID N°14

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNNTLTETILKGLKFNLTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLDSQT
MMVLVNYIFFKAKWEMPFDPDQTHQSRFYLSKKKWMVPMMSLHHLTIPIYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLNLDILLQL
GIEEAFSTKADLSGITGARNLAVSQVVHKAVIDVFEEGTEASAATAVKITFRSALVETRTIVRF
NRPFMLIIVPTDTQNIFFMSKVTNPKQA*

FIG. 8

<i>Serpin</i>	<i>Sequences</i>	<i>P6</i>	<i>P5</i>	<i>P4</i>	<i>P3</i>	<i>P2</i>	<i>P1</i>	<i>P'1</i>	<i>P'2</i>	<i>P'3</i>	<i>P'4</i>	<i>P'5</i>
ACT_{WT}	Protein (a.a) SEQ ID N° 15	V	K	I	T	L	L*	S	A	L	V	E
	DNA (codon)	GTC	AAA	ATC	ACC	CTC	CTT	TCT	GCA	TTA	GTG	GAG
MD820	Protein (a.a) SEQ ID N° 16	V	K	I	T	L	<u>R</u> *	S	<u>R</u>	<u>A</u>	V	E
	DNA (codon)	GTC	AAA	ATC	ACC	CTC	<u>CGT</u>	TCT	<u>CGA</u>	<u>GCA</u>	GTG	GAG
MD62	Protein (a.a) SEQ ID N° 17	V	K	I	T	<u>R</u>	<u>R</u> *	S	<u>I</u>	<u>D</u>	V	E
	DNA (codon)	GTC	AAA	ATC	ACC	<u>AGG</u>	<u>AGG</u>	TCT	<u>ATC</u>	<u>GAT</u>	GTG	GAG
MD83	Protein (a.a) SEQ ID N° 18	V	K	I	<u>R</u>	<u>G</u>	<u>R</u> *	S	<u>E</u>	L	V	E
	DNA (codon)	GTC	AAA	ATC	<u>AGG</u>	<u>GGG</u>	<u>AGA</u>	TCT	<u>GAG</u>	TTA	GTG	GAG
MD67	Protein (a.a) SEQ ID N° 19	V	K	I	<u>K</u>	L	<u>R</u> *	<u>I</u>	<u>I</u>	L	V	E
	DNA (codon)	GTC	AAA	ATC	<u>AAG</u>	CTT	<u>AGA</u>	<u>ACA</u>	<u>ACA</u>	TTA	GTG	GAG
MD61	Protein (a.a) SEQ ID N° 20	V	K	I	<u>M</u>	<u>I</u>	<u>R</u> *	S	<u>N</u>	<u>A</u>	V	E
	DNA (codon)	GTC	AAA	ATC	<u>ATG</u>	<u>ACA</u>	<u>AGA</u>	TCT	<u>AAC</u>	<u>GCA</u>	GTG	GAG
MD518	Protein (a.a) SEQ ID N° 21	V	K	I	T	<u>E</u>	<u>R</u> *	<u>V</u>	<u>S</u>	<u>P</u>	V	E
	DNA (codon)	GTC	AAA	ATC	ACC	<u>GAG</u>	<u>CGT</u>	<u>GTC</u>	<u>TCG</u>	<u>CCC</u>	GTG	GAG
MDCI	Protein (a.a) SEQ ID N° 22	V	K	I	T	<u>F</u>	<u>R</u> *	S	A	L	V	E
	DNA (codon)	GTC	AAA	ATC	ACC	<u>TTT</u>	<u>AGA</u>	TCT	GCA	TTA	GTG	GAG

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FIG. 9

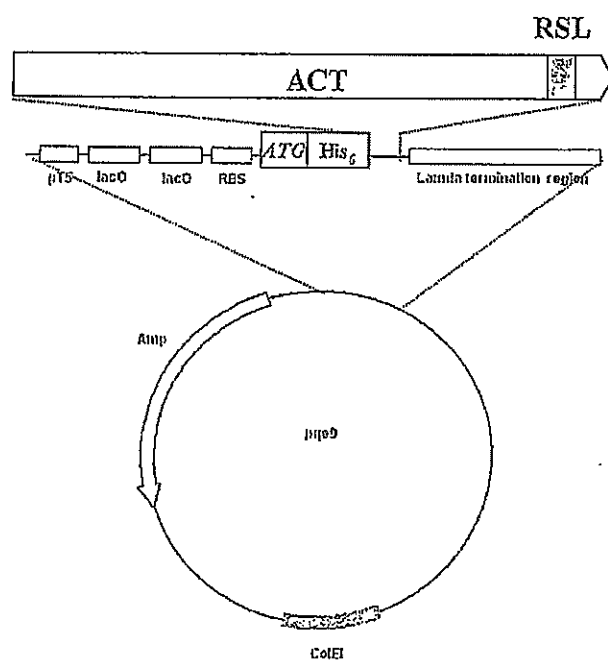
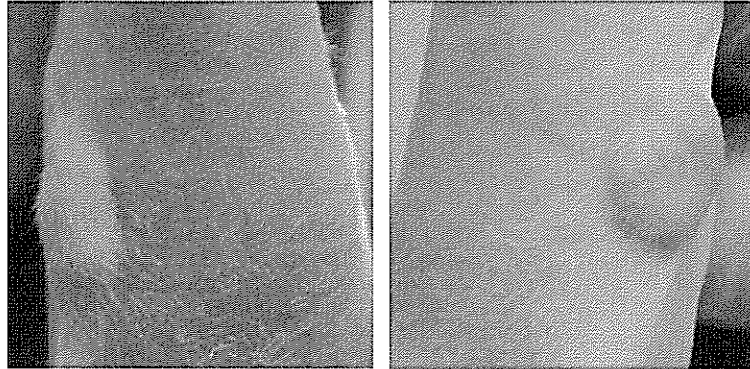
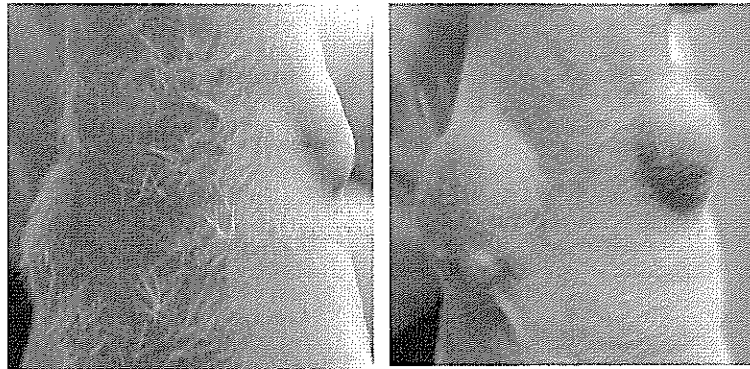


FIG. 10 A

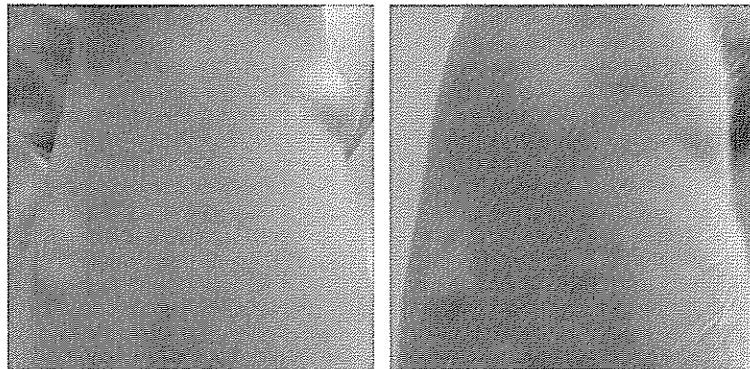
Control



ACT-WT (50ug)



MD 62 (25ug)



MD 62 (5ug)

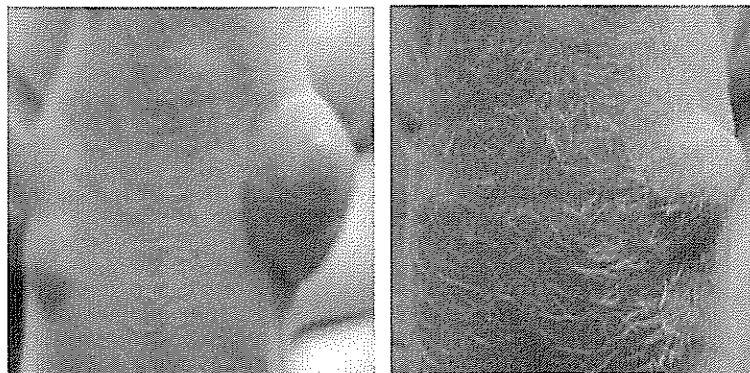
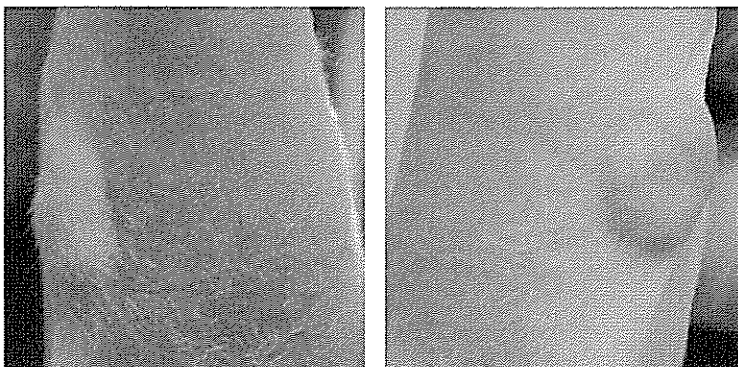
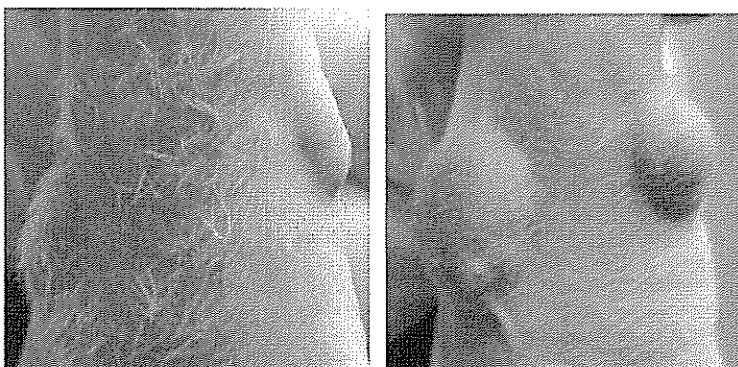


FIG. 10 B

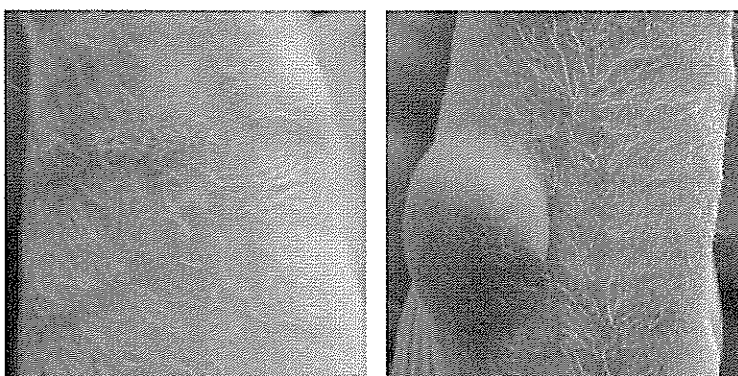
Control



ACT-WT (50ug)



MD 67 (25ug)



MD 67 (5ug)

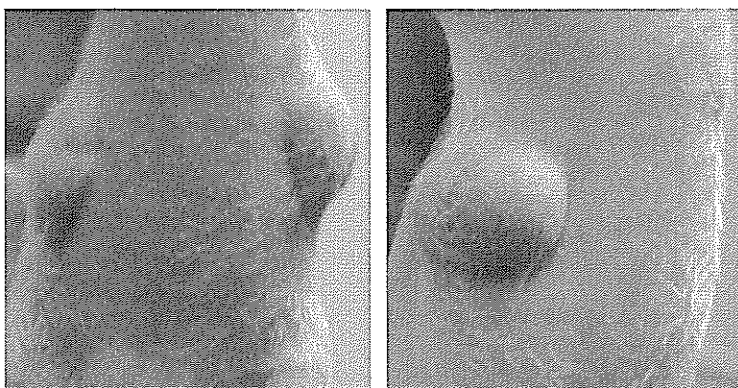
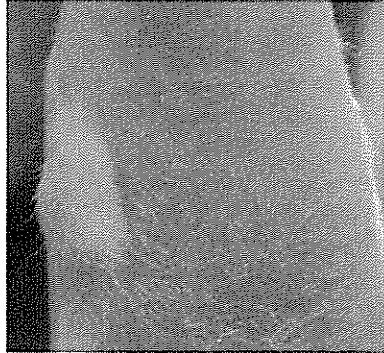


FIG. 11

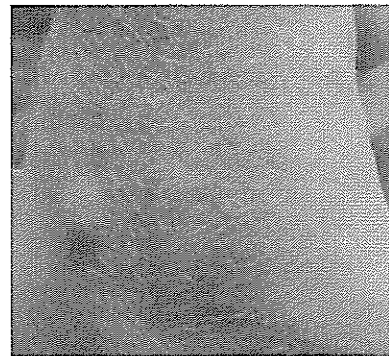
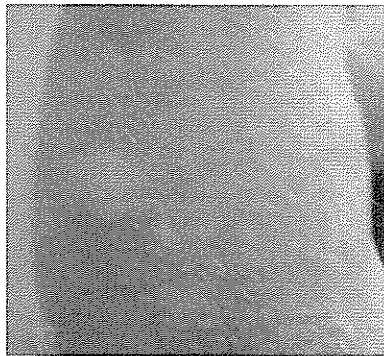
Control



ACT-WT (50ug)



MD CI (50ug)



MD CI (5ug)

