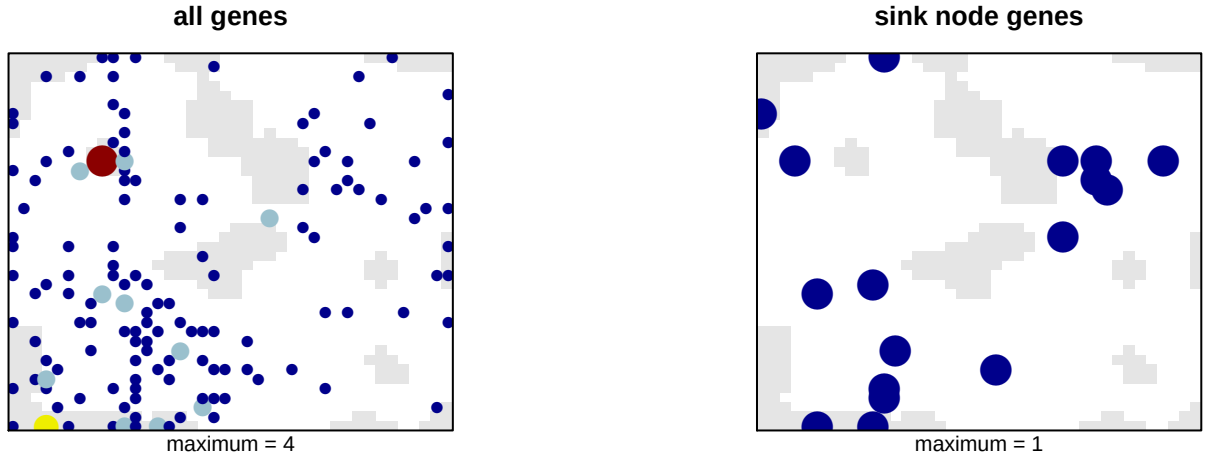
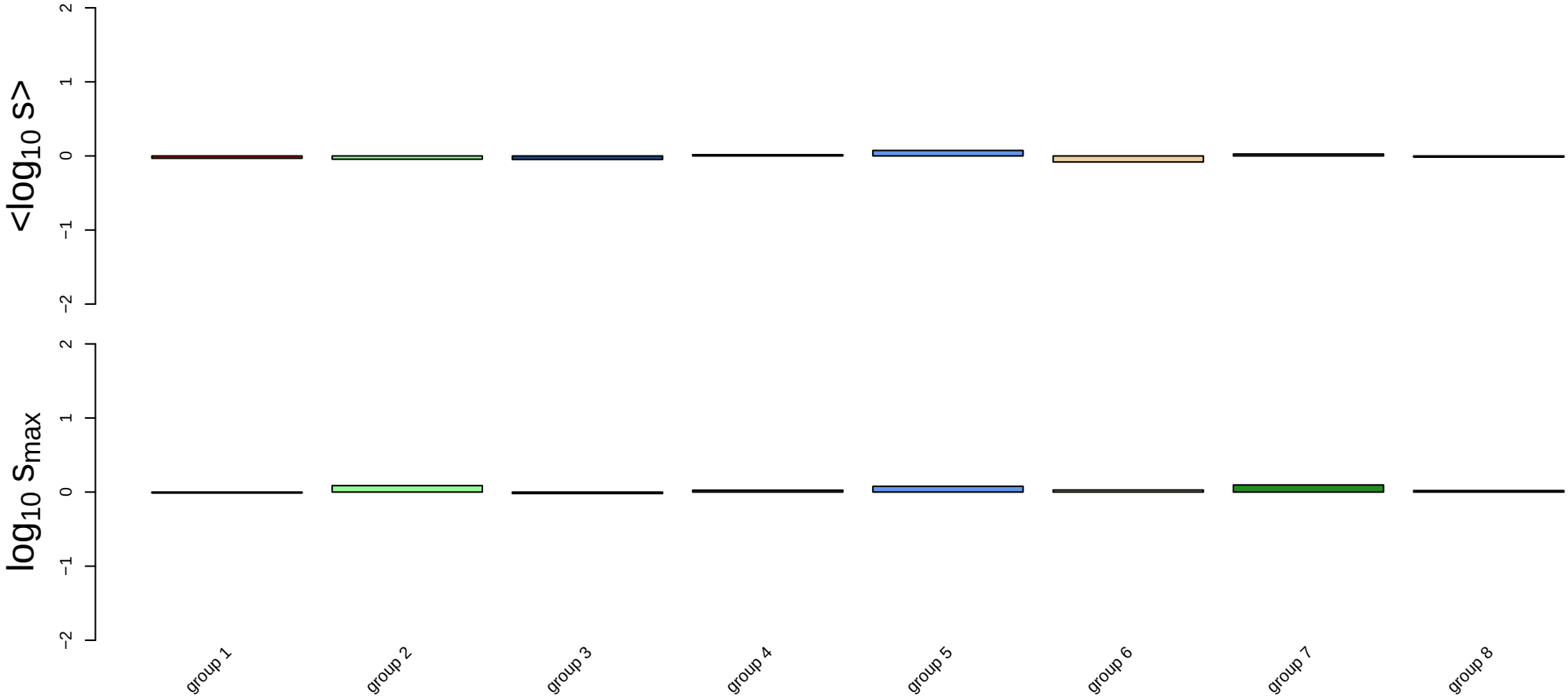
RNA degradation

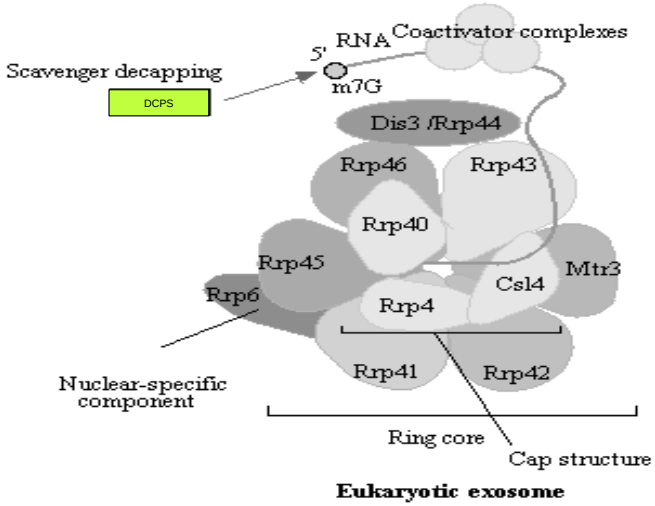




Eukaryotic RNA degradation

RNA_degradation
genes with data

3 '→ 5' decay



Eukaryotic core exosome

	EXOSC1	EXOSC2		EXOSC3
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

Exosome associated factors

Nuclear exosome cofactors

DIS3	EXOSC10	C1D	MPHOSPH6

Cytoplasmic exosome cofactor

DIS3L	SKI7

Exosome coactivator complexes

TRAMP complex

PAPD7	ZCCHC7	MTREX

Ski complex

SKIV2L	TTC37	WDR61

Cytoplasmic deadenylation

Ccr4-NOT complex

CNOT6L	CNOT1	CNOT2	CNOT3	CNOT4
CNOT7	CNOT9	CNOT10	Caf16	Caf120

DHX36

PNLDC1

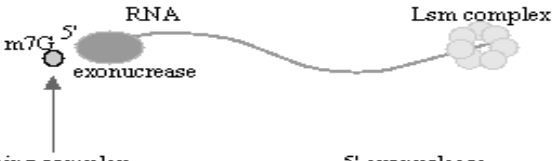
TOB1 ← PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

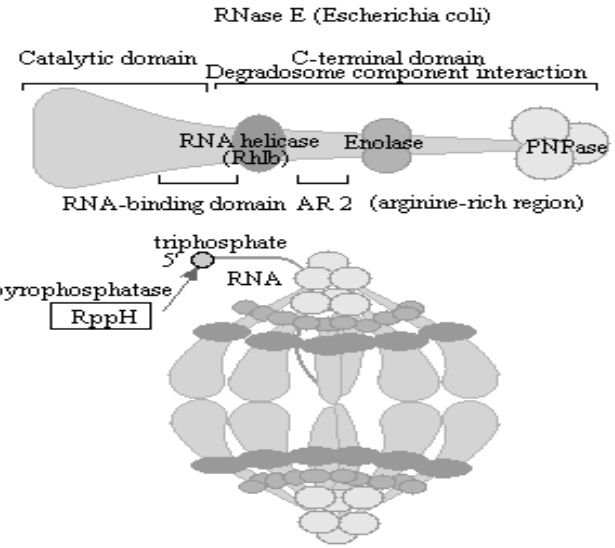
Lsm complex

Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation



RNA degradosome type A (Escherichia coli)

RNase E	RhlB	ENO1	PNPT1

RNA degradosome type B (Pseudomonas)

RNase E	RhlE	RNaseR

RNA degradosome type C (Rhodobacter)

RNase E	helicases	Rho

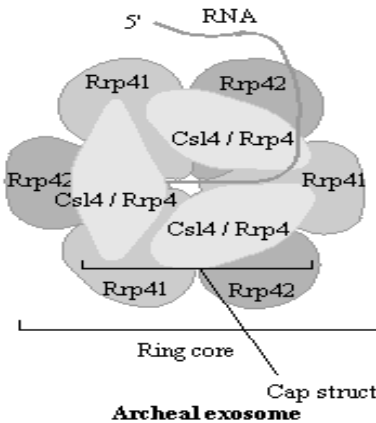
RNA degradosome type D (Bacillus subtilis)

RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

HSPA9	HSPD1	Hfq	
PPK	PAP		

Archeal RNA degradation

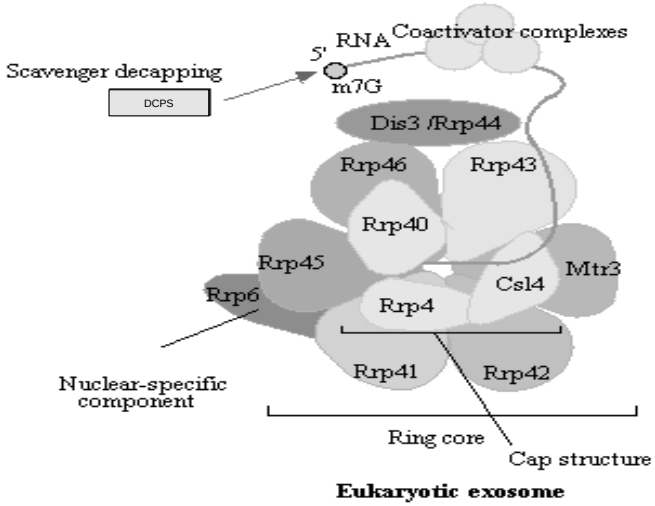


EXOSC4	EXOSC7	EXOSC2	
		EXOSC1	

Eukaryotic RNA degradation

RNA_degradation
sink nodes

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

	EXOSC1	EXOSC2	EXOSC3	
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

Exosome associated factors

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DHX36

PNLDC1

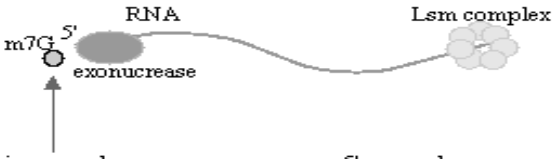
TOB1 ← PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

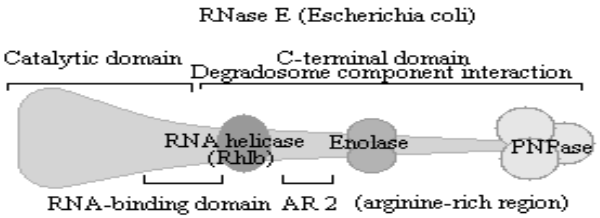
Lsm complex

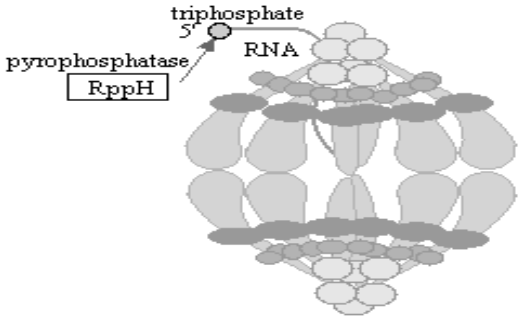
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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RNase E	RhlE	RNaseR

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				PFKL

Associated proteins

HSPA9	HSPD1	Hfq	
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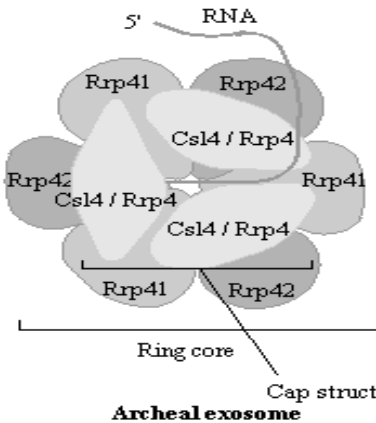
Archeal RNA degradation



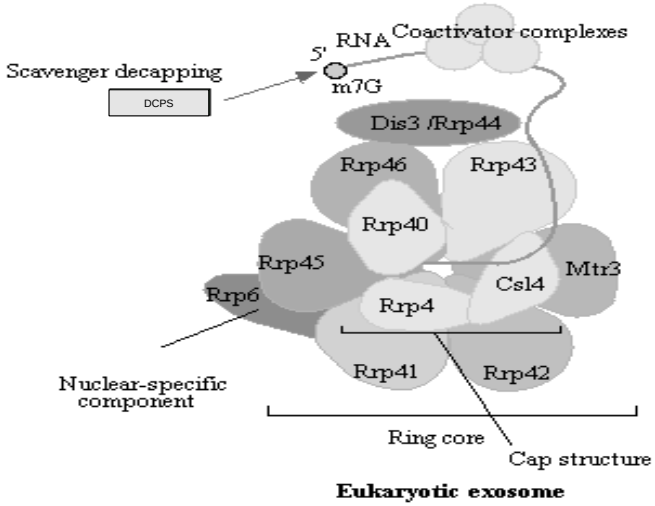
Archeal exosome

EXOSC4	EXOSC7	EXOSC2
		EXOSC1

Eukaryotic RNA degradation

RNA_degradation
influencer genes

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

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EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

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DHX36

PNLDC1

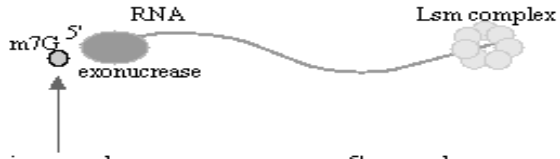
TOB1	PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

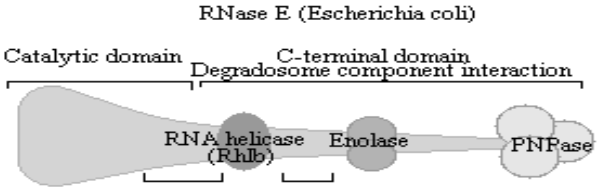
Lsm complex

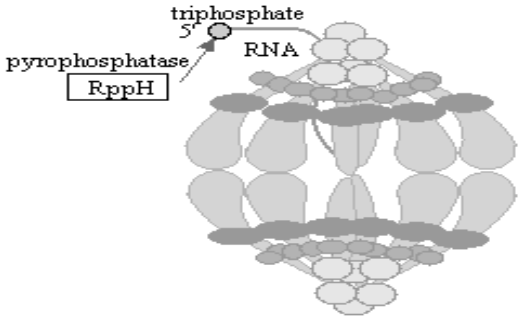
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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RNase E	RhlE	RNaseR

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RNase E	helicases	Rho

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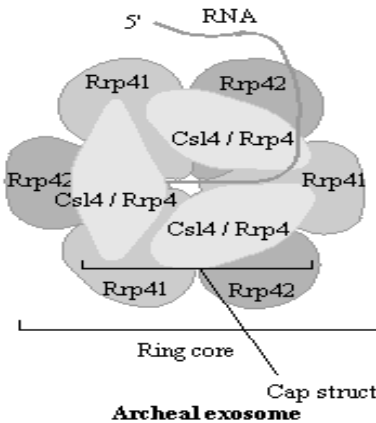
RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

HSPA9	HSPD1	Hfq	
PPK	PAP		

Archeal RNA degradation



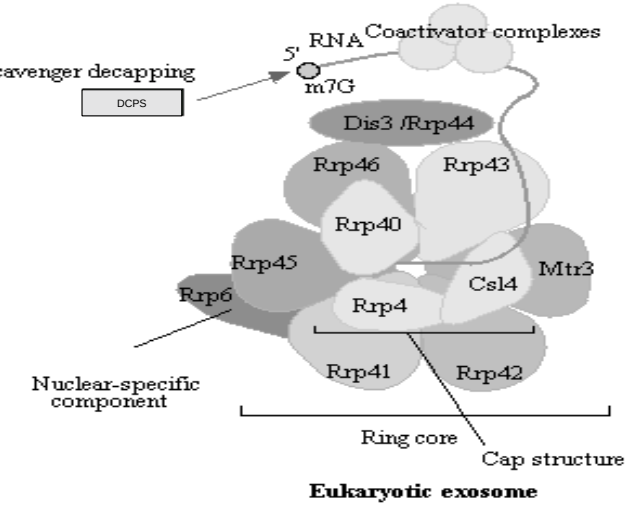
Archeal exosome

EXOSC4	EXOSC7	EXOSC2
		EXOSC1

Eukaryotic RNA degradation

RNA_degradation
group 1

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

	EXOSC1	EXOSC2	EXOSC3	
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

Exosome associated factors

Nuclear exosome cofactors

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DIS3L	SKI7

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CNOT7	CNOT9	CNOT10	Caf16	Caf120

DHX36

PNLDC1

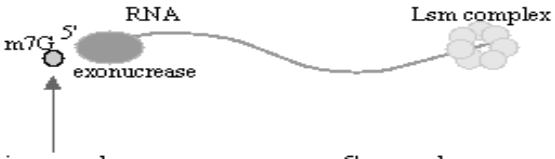
TOB1 — PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

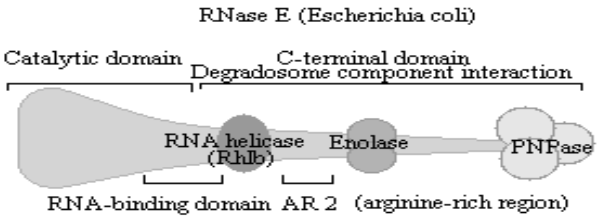
Lsm complex

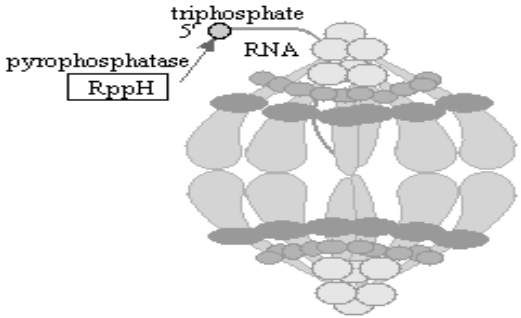
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





RNA degradosome

RNA degradosome type A (Escherichia coli)

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RNA degradosome type B (Pseudomonas)

RNase E	RhlE	RNaseR

RNA degradosome type C (Rhodobacter)

RNase E	helicases	Rho

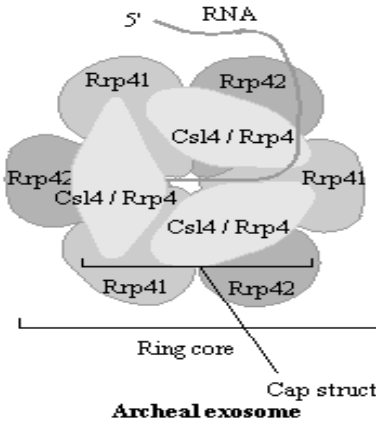
RNA degradosome type D (Bacillus subtilis)

RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

HSPA9	HSPD1	Hfq	
PPK	PAP		

Archeal RNA degradation



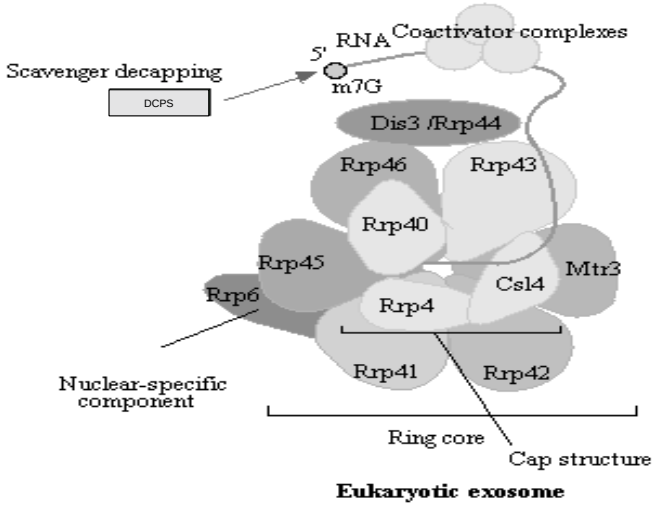
Archeal exosome

EXOSC4	EXOSC7	EXOSC2	
		EXOSC1	

Eukaryotic RNA degradation

RNA_degradation
group 2

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

	EXOSC1	EXOSC2	EXOSC3	
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

Exosome associated factors

Nuclear exosome cofactors

DIS3	EXOSC10	C1D	MPHOSPH6

Cytoplasmic exosome cofactor

DIS3L	SKI7

Exosome coactivator complexes

TRAMP complex

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Ski complex

SKIV2L	TTC37	WDR61

Cytoplasmic deadenylation

Ccr4-NOT complex

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DHX36

PNLDC1

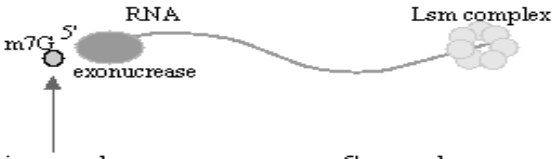
TOB1 — PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

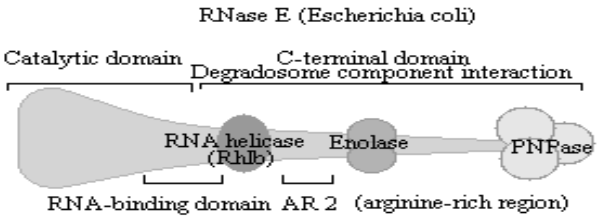
Lsm complex

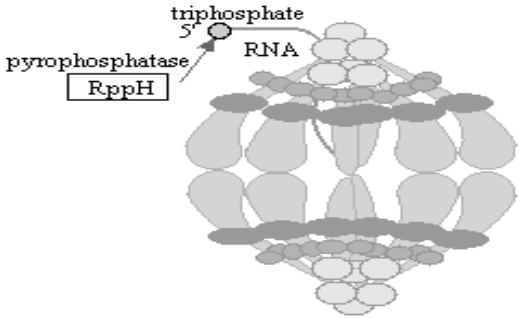
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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RNase E	helicases	Rho

RNA degradosome type D (Bacillus subtilis)

RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

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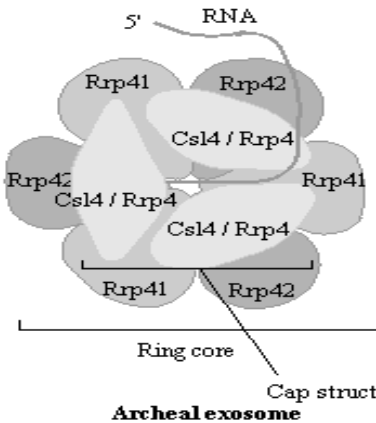
PPK	PAP		

Archeal RNA degradation



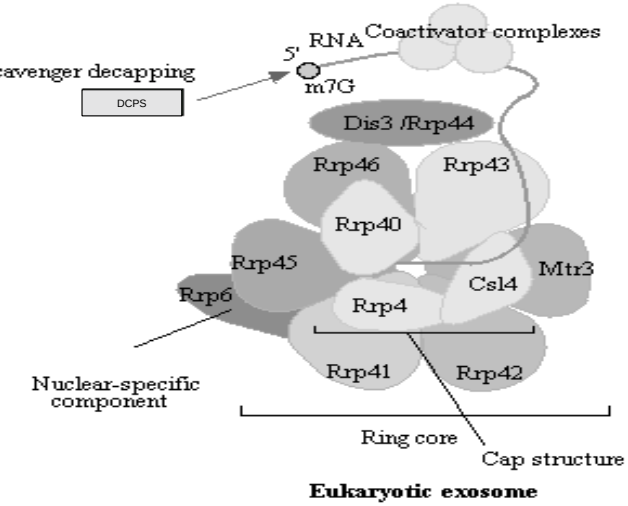
Archeal exosome

EXOSC4	EXOSC7	EXOSC2	
		EXOSC1	

Eukaryotic RNA degradation

RNA_degradation
group 3

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

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EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
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PNLDC1

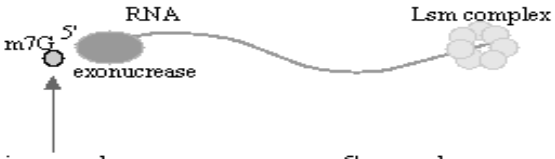
TOB1 — PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

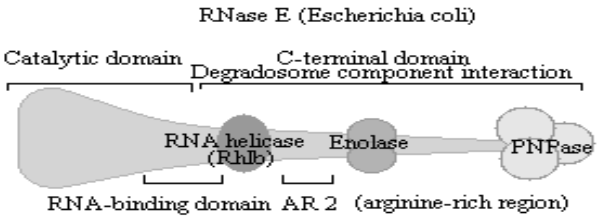
Lsm complex

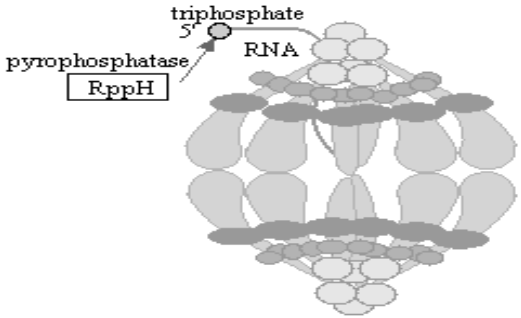
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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RNaseY	CshA	RNaseJ	ENO1	PNPT1
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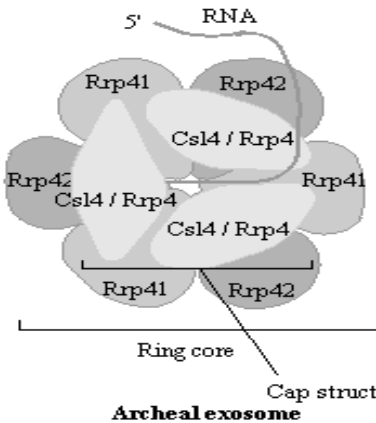


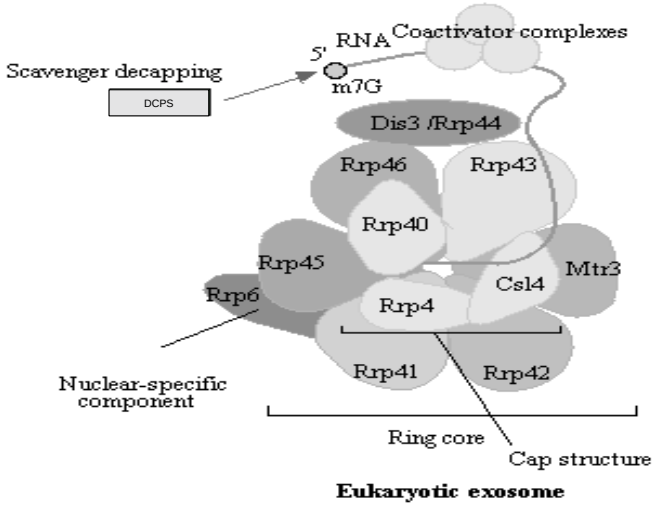
Archeal exosome

EXOSC4	EXOSC7	EXOSC2	
		EXOSC1	

Eukaryotic RNA degradation

RNA_degradation
group 4

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

	EXOSC1	EXOSC2		EXOSC3
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

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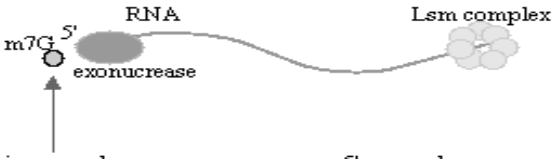
TOB1 ← PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

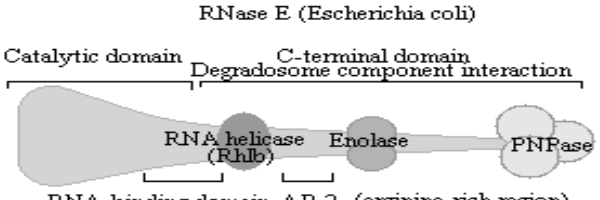
Lsm complex

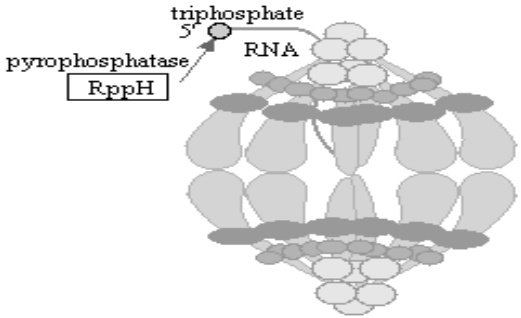
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





RNA degradosome

RNA degradosome type A (Escherichia coli)

RNase E	RhlB	ENO1	PNPT1

RNA degradosome type B (Pseudomonas)

RNase E	RhlE	RNaseR

RNA degradosome type C (Rhodobacter)

RNase E	helicases	Rho

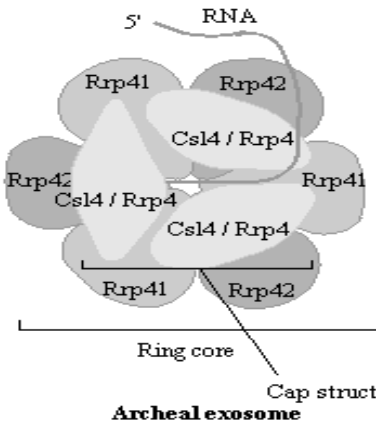
RNA degradosome type D (Bacillus subtilis)

RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

HSPA9	HSPD1	Hfq	
PPK	PAP		

Archeal RNA degradation



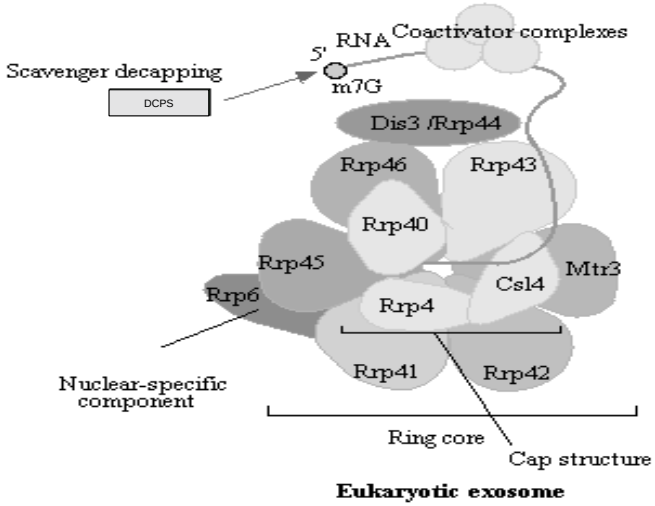
Archeal exosome

EXOSC4	EXOSC7	EXOSC2
		EXOSC1

Eukaryotic RNA degradation

RNA_degradation
group 5

3 '→ 5' decay



Eukaryotic core exosome

	EXOSC1	EXOSC2	EXOSC3	
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
	EXOSC9			

Exosome associated factors

Nuclear exosome cofactors

DIS3	EXOSC10	C1D	MPHOSPH6

Cytoplasmic exosome cofactor

DIS3L	SKI7

Exosome coactivator complexes

TRAMP complex

PAPD7	ZCCHC7	MTREX

Ski complex

SKIV2L	TTC37	WDR61

Cytoplasmic deadenylation

Ccr4-NOT complex

CNOT6L	CNOT1	CNOT2	CNOT3	CNOT4
CNOT7	CNOT9	CNOT10	Caf16	Caf120

DHX36

PNLDC1

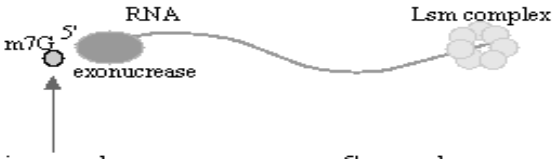
TOB1 — PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

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DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

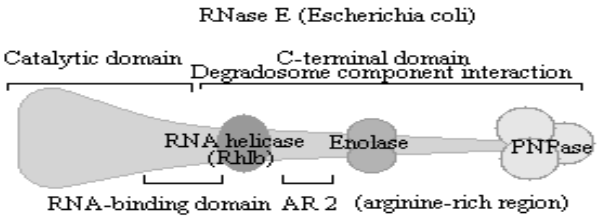
Lsm complex

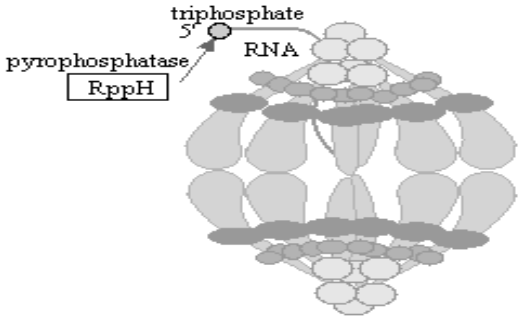
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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RNase E	RhlE	RNaseR

RNA degradosome type C (Rhodobacter)

RNase E	helicases	Rho

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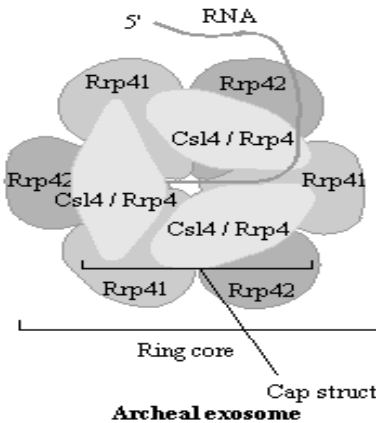
RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

HSPA9	HSPD1	Hfq
PPK	PAP	

Archeal RNA degradation

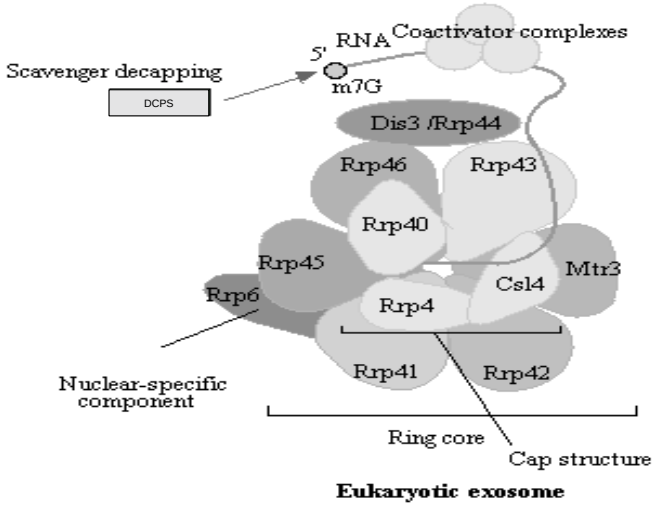


EXOSC4	EXOSC7	EXOSC2
		EXOSC1

Eukaryotic RNA degradation

RNA_degradation
group 6

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

	EXOSC1	EXOSC2	EXOSC3	
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

Exosome associated factors

Nuclear exosome cofactors

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Cytoplasmic exosome cofactor

DIS3L	SKI7

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CNOT7	CNOT9	CNOT10	Caf16	Caf120

DHX36

PNLDC1

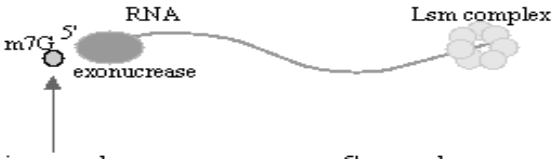
TOB1 — PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

DCP1B	DDX6	PATL1
DCP2	EDC3	
	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

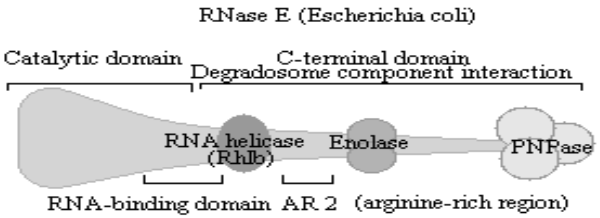
Lsm complex

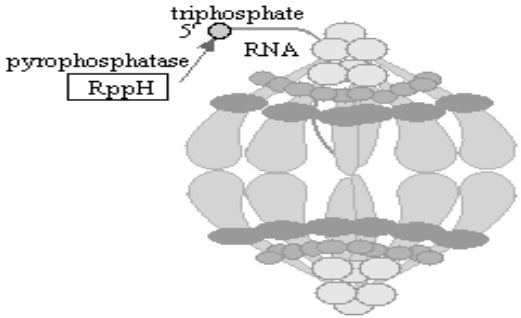
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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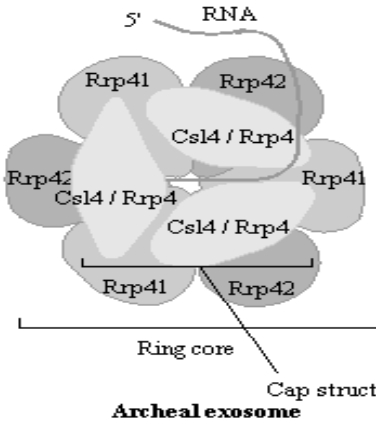
RNaseY	CshA	RNaseJ	ENO1	PNPT1
				PFKL

Associated proteins

HSPA9	HSPD1	Hfq	
PPK	PAP		

Archeal RNA degradation



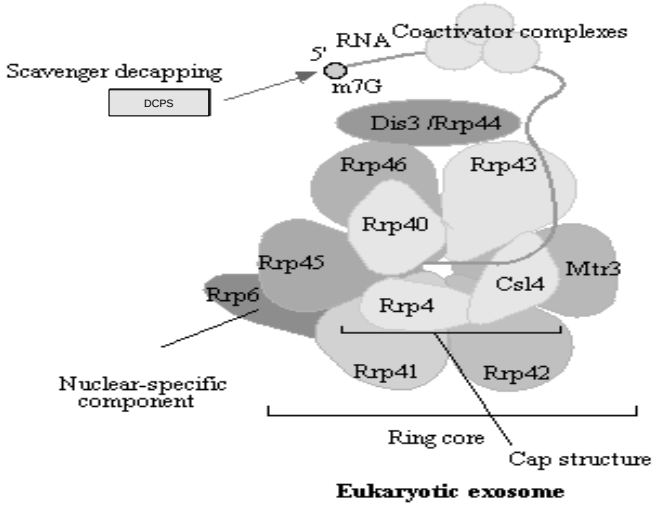
Archeal exosome

EXOSC4	EXOSC7	EXOSC2	
		EXOSC1	

Eukaryotic RNA degradation

RNA_degradation
group 7

3 '→ 5' decay



Eukaryotic exosome

Eukaryotic core exosome

	EXOSC1	EXOSC2		EXOSC3
EXOSC8	EXOSC6	EXOSC7	EXOSC4	EXOSC5
		EXOSC9		

Exosome associated factors

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DHX36

PNLDC1

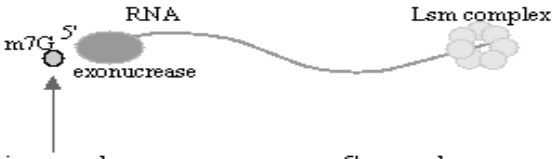
TOB1 ← PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

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	EDC4	

5' exonuclease

XRN1	XRN2
NUDT16	

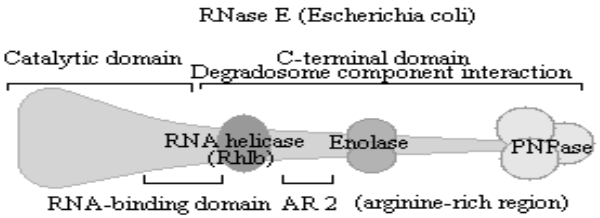
Lsm complex

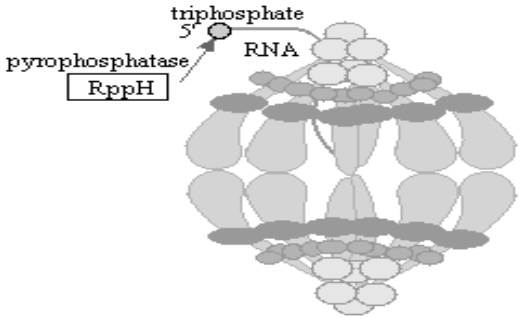
Cytoplasmic Lsm 1-7 complex

LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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				PFKL

Associated proteins

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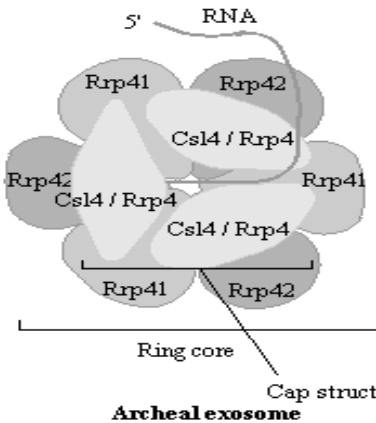
PPK	PAP		

Archeal RNA degradation



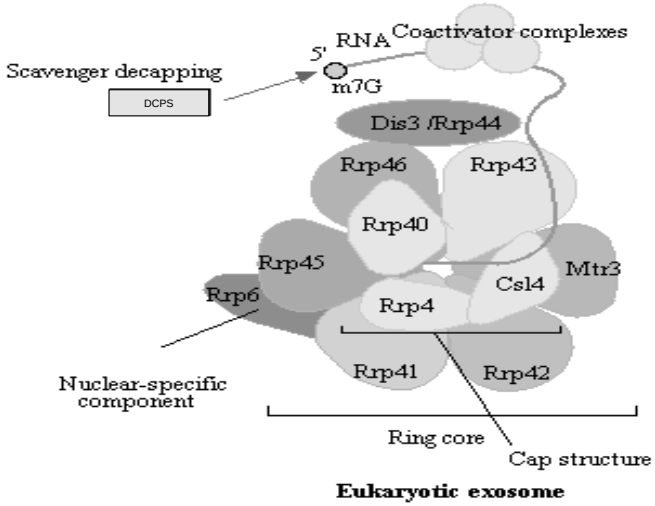
Archeal exosome

EXOSC4	EXOSC7	EXOSC2
		EXOSC1

Eukaryotic RNA degradation

RNA_degradation
group 8

3 '→ 5' decay



Eukaryotic exosome

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DHX36

PNLDC1

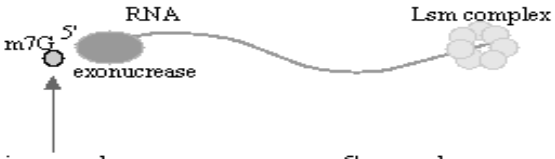
TOB1 — PABPC4L

Pan complex

PAN2	PAN3

mRNA surveillance pathway

5 '→ 3' decay



Decapping complex

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DCP2	EDC3	
	EDC4	

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Lsm complex

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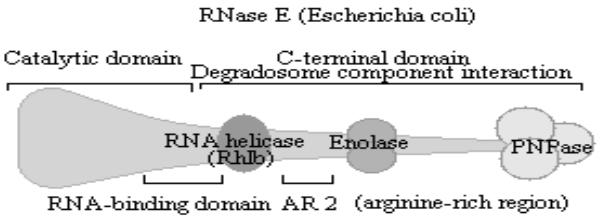
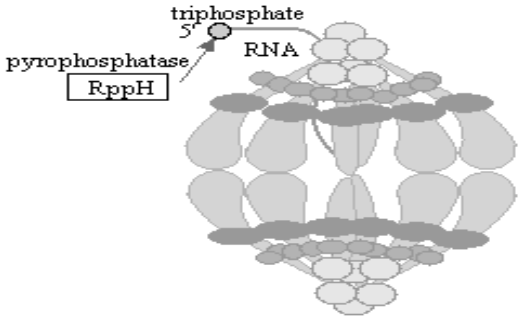
LSM1	LSM2	LSM3	LSM4	LSM8
	LSM5	LSM6	LSM7	

Nuclear Lsm 2-8 complex

Bacterial RNA degradation





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RNaseY	CshA	RNaseJ	ENO1	PNPT1
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Associated proteins

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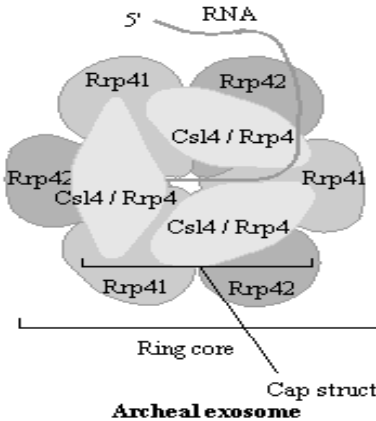

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