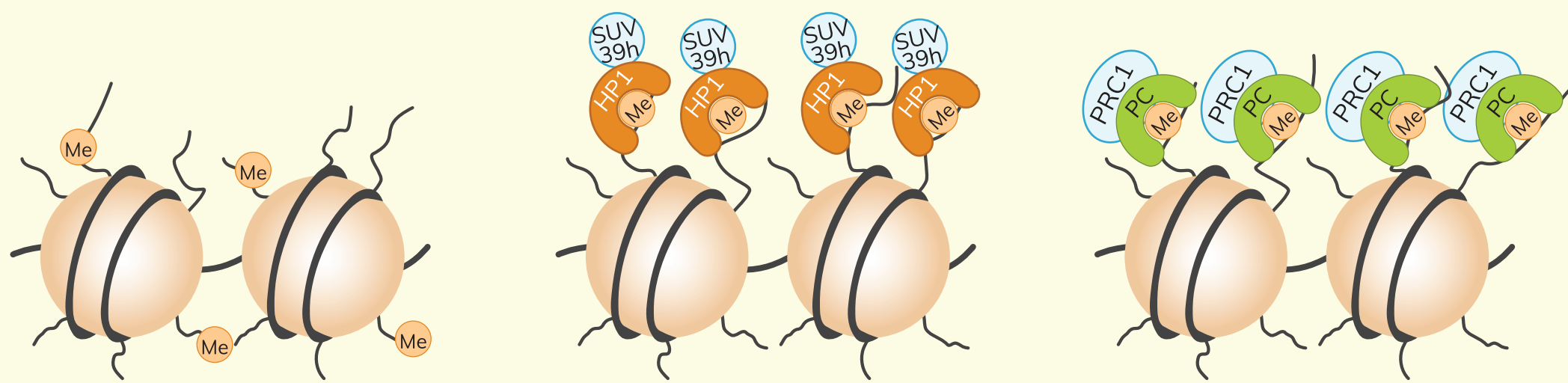


Histone Lysine Methylation Pathway

Methylation Degree:

+ Mono † Di ‡ Tri

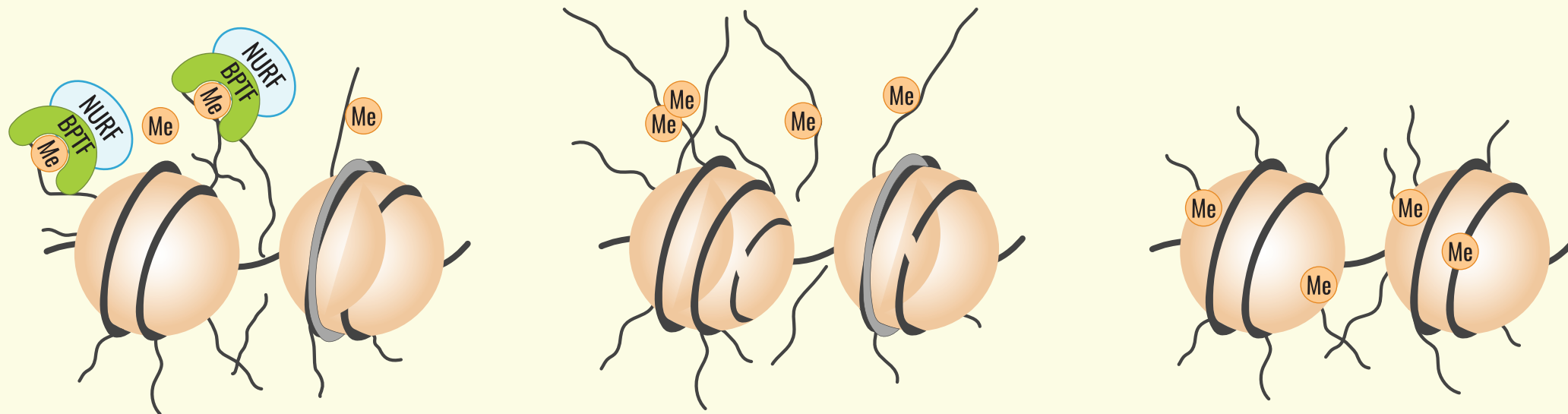
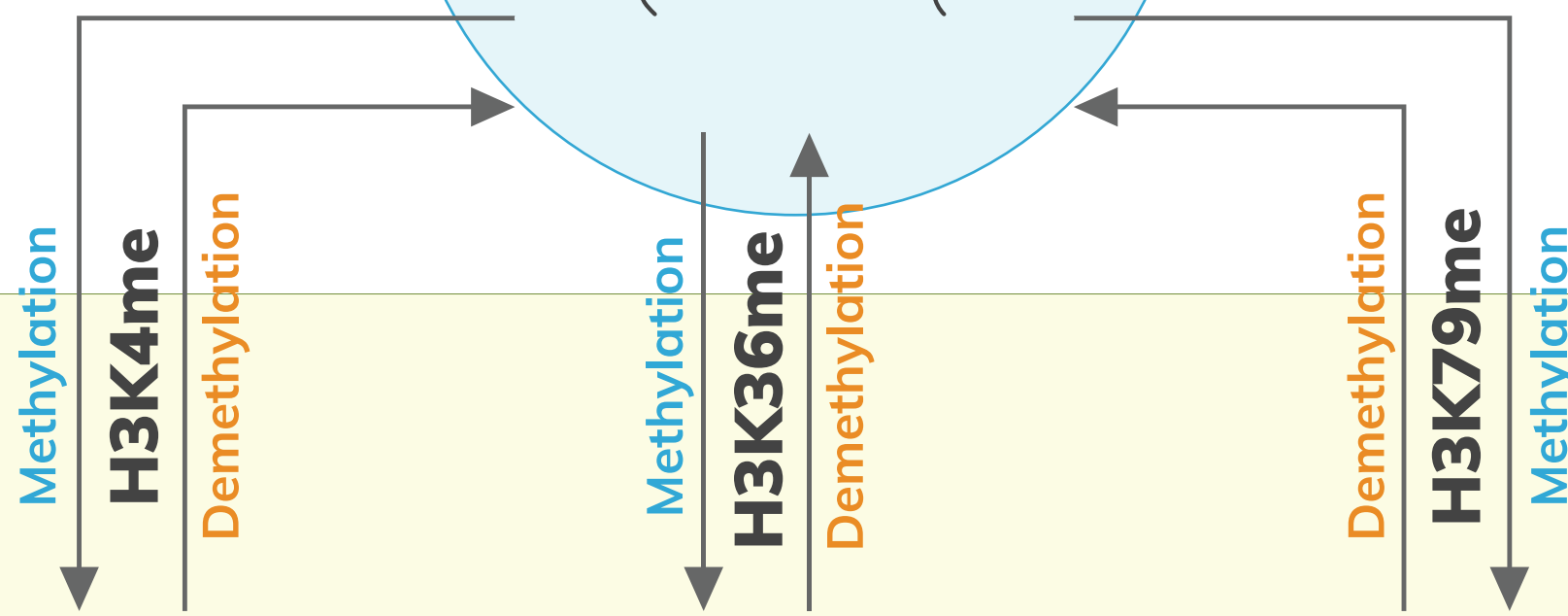
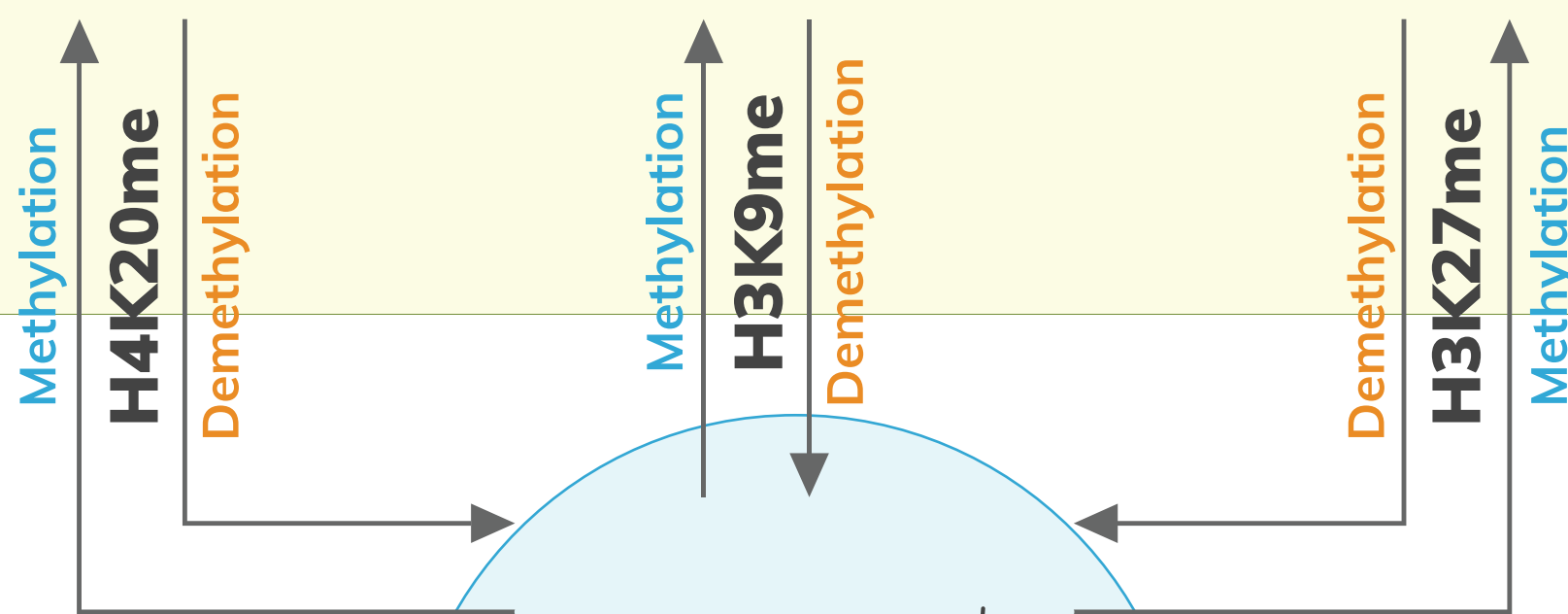
Transcriptionally Inactive Chromatin



Pericentric Heterochromatin

Pericentric Heterochromatin Inactive X Chromosome Rb-Mediated Repression

Inactive X Chromosome Hox Gene Repression



Transcription Initiation

Transcription Elongation

Anti-Silencing

Transcriptionally Active Chromatin

H4K20me

Methylases:

SET8/KMT5A (+)
NSD1/KMT3B (+,†)
ASH1L/KMT2H (+,†,‡)
SUV420H1/KMT5B (†,‡)
SUV420H2/KMT5C (†,‡)
NSD2/KMT3G (+,†)

Demethylases:

JHDM1D/KDM7A (+,†)
PHF8/KDM7B (+,†)

H3K9me

Methylases:

PRDM3/KMT8E (+)
PPRDM16/KMT8F (+)
G9a/EHMT2/KMT1C (+,†)
EHMT1/KMT1D (+,†)
ASH1L/KMT2H (+,†,‡)
PRDM2/KMT8A (+,†,‡)
PRDM8/KMT8D (†)
SUV39H1/KMT1A (†,‡)
SUV39H2/KMT1B (†,‡)
ESET/KMT1E (†,‡)
CLLD8/KMT1F (†,‡)

Demethylases:

AOF1/KDM1B (+,†)
JMJD1A/KDM3A (+,†)
JMJD1B/KDM3B (+,†)
JMJD1C/KDM3C (+,†)
JHDM1D/KDM7A (+,†)
PHF8/KDM7B (+,†)
JMJD2A/KDM4B (†,‡)
JMJD2B/KDM4B (†,‡)
JMJD2C/KDM4C (†,‡)
JMJD2D/KDM4D (†,‡)
KDM4E/KDM4DL (†,‡)

H3K27me

Methylases:

Ezh2/KMT6 (+,†,‡)
NSD2/KMT3G (+,†,‡)
NSD3/KMT3F (†,‡)

Demethylases:

JHDM1D/KDM7A (+,†)
PHF8/KDM7B (+,†)
UTX/KDM6A (†,‡)
JMJD3/KDM6B (†,‡)

H3K27me

Methylases:

MLL1/KMT2A (+,†,‡)
MLL2/KMT2B (+,†,‡)
MLL3/KMT2C (+)
MLL4/KMT2D (+)
SET1A/KMT2F (+,†,‡)
SET1B/KMT2G (+,†,‡)
NSD3/KMT3F (+,†)
NSD2/KMT3G (+,†)
SET7/KMT7 (†)
SMYD3/KMT3E (†,‡)
ASH1L/KMT2H (+,†,‡)
PRDM9/KMT8B (†)

Demethylases:

JHDM1D/KDM7A (+,†)
PHF8/KDM7B (+,†)
UTX/KDM6A (†,‡)
JMJD3/KDM6B (†,‡)

H3K36me

Methylases:

NSD1/KMT3B (+,†)
SMYD2/KMT3C (+,†)
NSD2/KMT3G (+,†)
SET2/KMT3A (†)

Demethylases:

JMJD1A/KDM2A (+,†)
JMJD1B/KDM2B (+,†)
JMJD2A/KDM4A (†,‡)
JMJD2B/KDM4B (†,‡)
JMJD2C/KDM4C (†,‡)
JMJD2D/KDM4D (†,‡)
KDM4DL/KDM4E (†,‡)

H3K79me

Methylases:

DOTIL/KMT4 (+,†,‡)

Demethylases:

???

