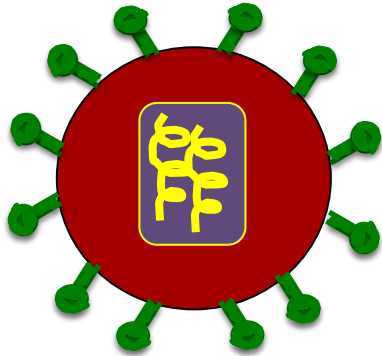
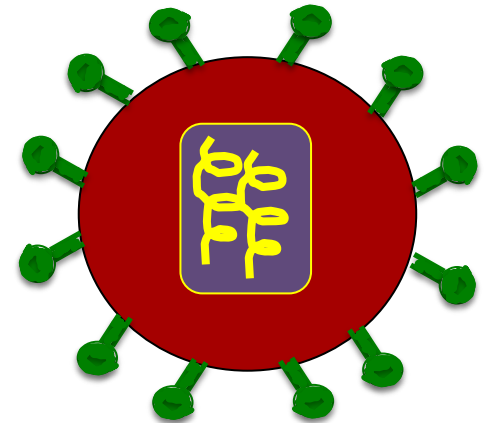




Anti-Retroviral Therapy Basics

E Duke



David Spach's National HIV Curriculum

National HIV Curriculum

Sign In or Register

Antiretroviral Medications

Course Modules

Question Bank

Clinical Challenges

Tools & Calculators

Clinical Consultation

HIV Resources



Antiretroviral Medications

Prescribing Information, Clinical Studies, and Slide Decks
All materials are available for download in their original formats as PDF or PowerPoint.

Section Editors
David H. Spach, MD, Brian R. Wood, MD, Susa Coffey, MD

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Biktarvy
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Symtuza
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Fuzeon
Editor's Summary »
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Ibalizumab
Trogarzo
Editor's Summary »
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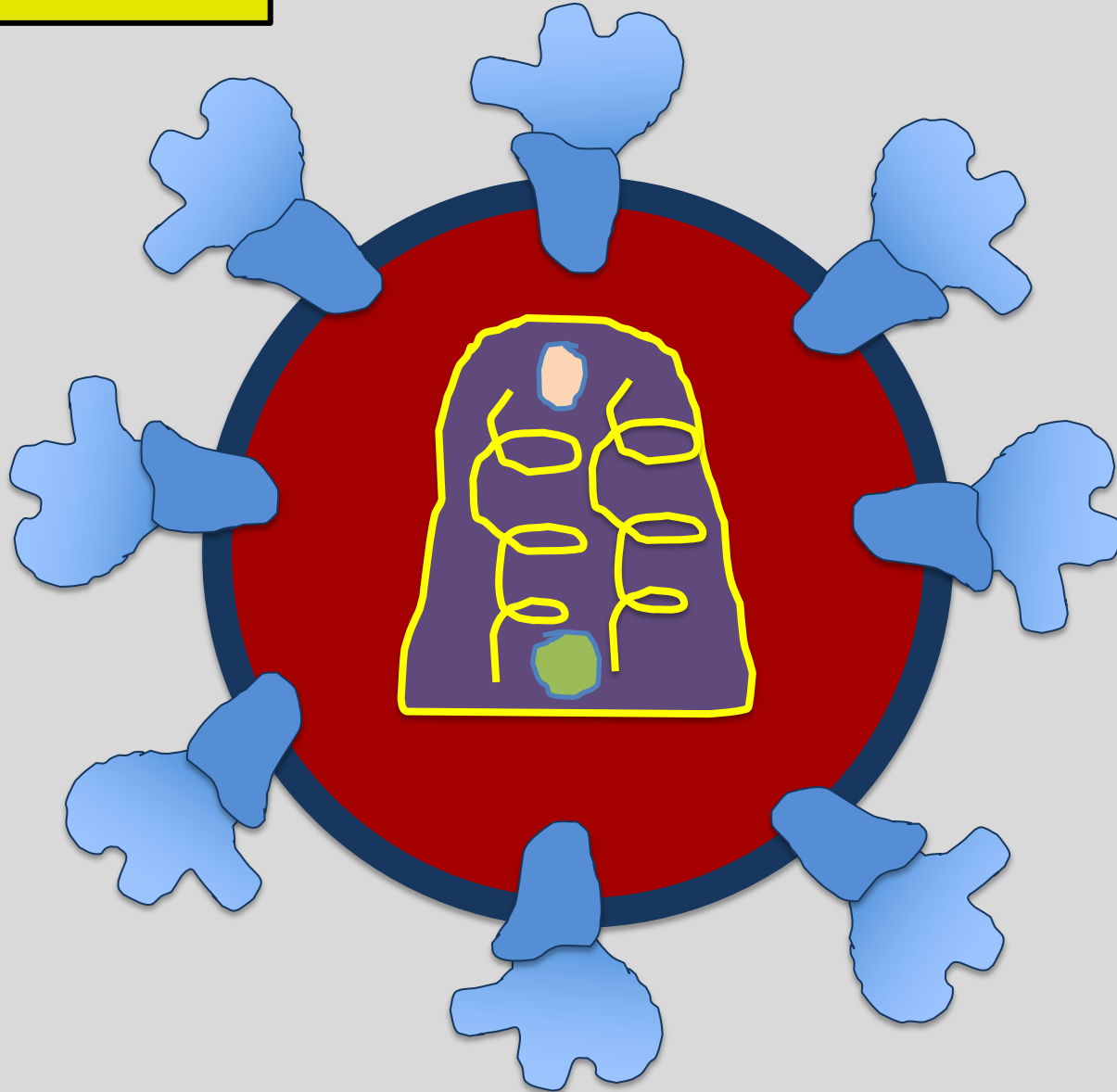

Maraviroc
Selzentry
Editor's Summary »
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Fostemsavir 
Editor's Summary »
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References »
Slide Deck »

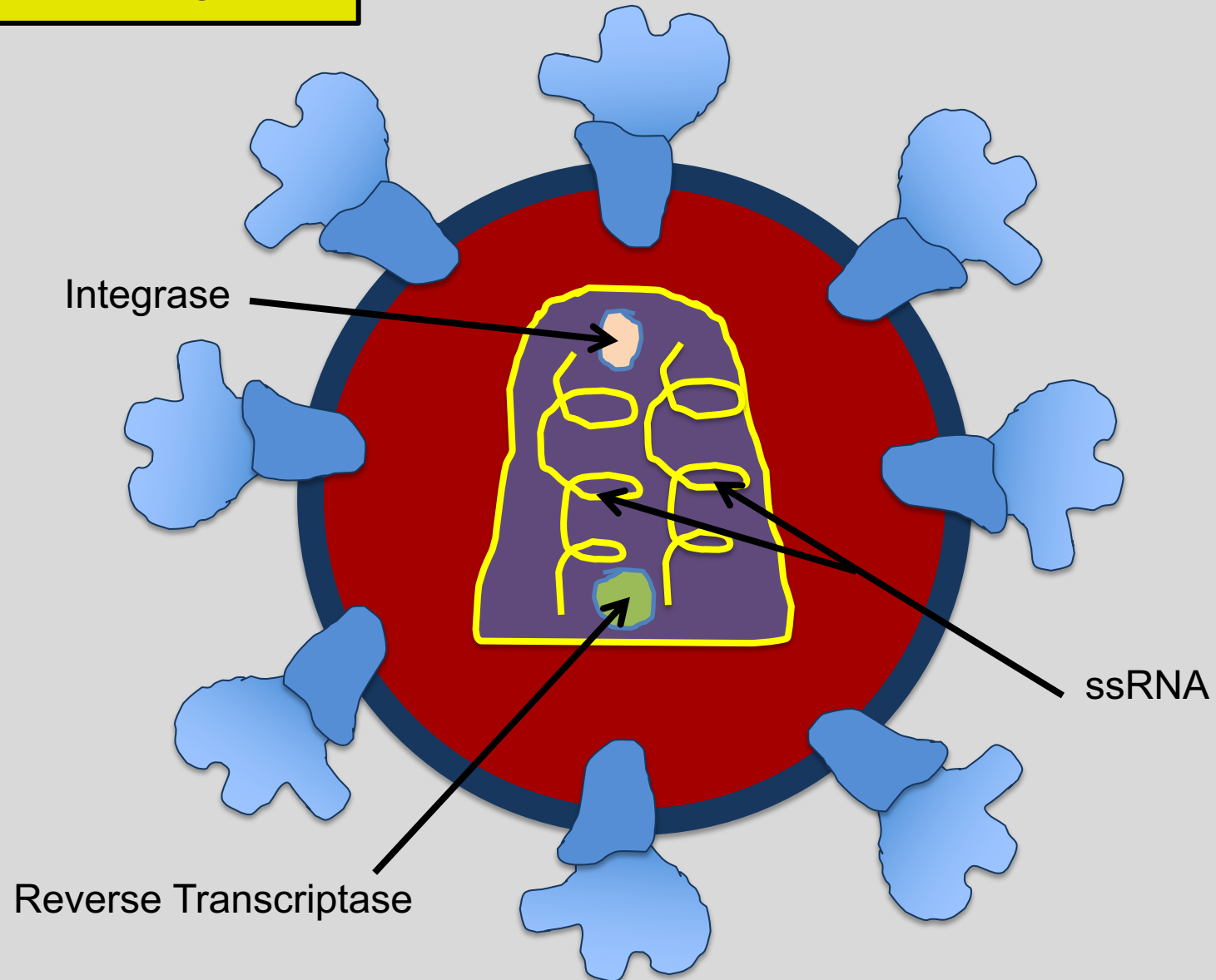
Nucleoside Reverse Transcriptase Inhibitors (NRTI)

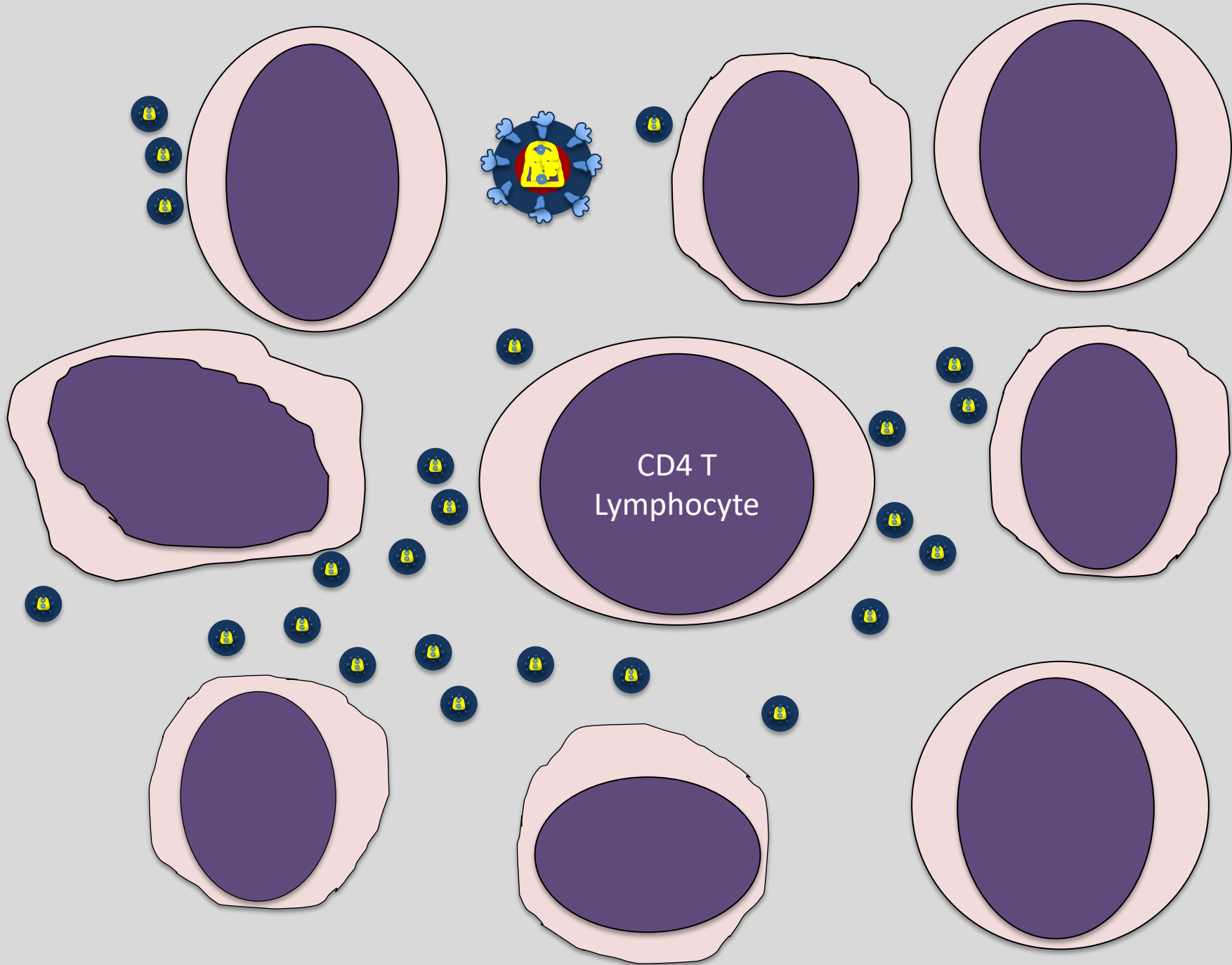
<https://www.hiv.uw.edu/page/treatment/drugs>

HIV Virion

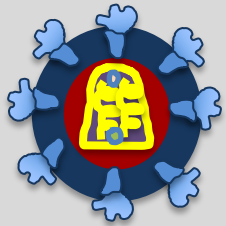


HIV Virion

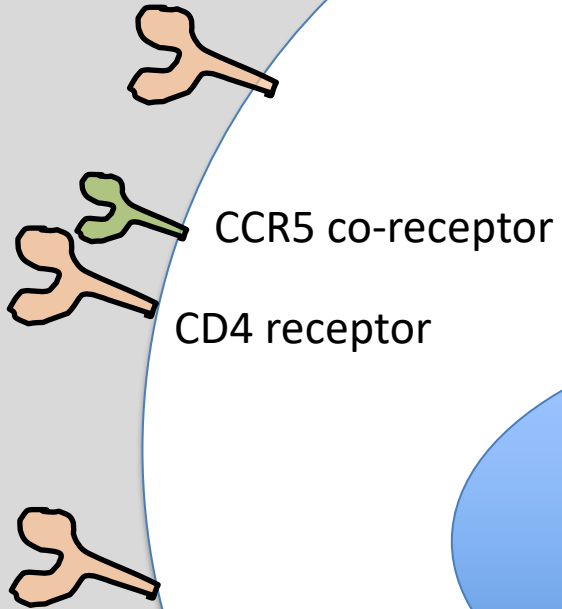




HIV Infection



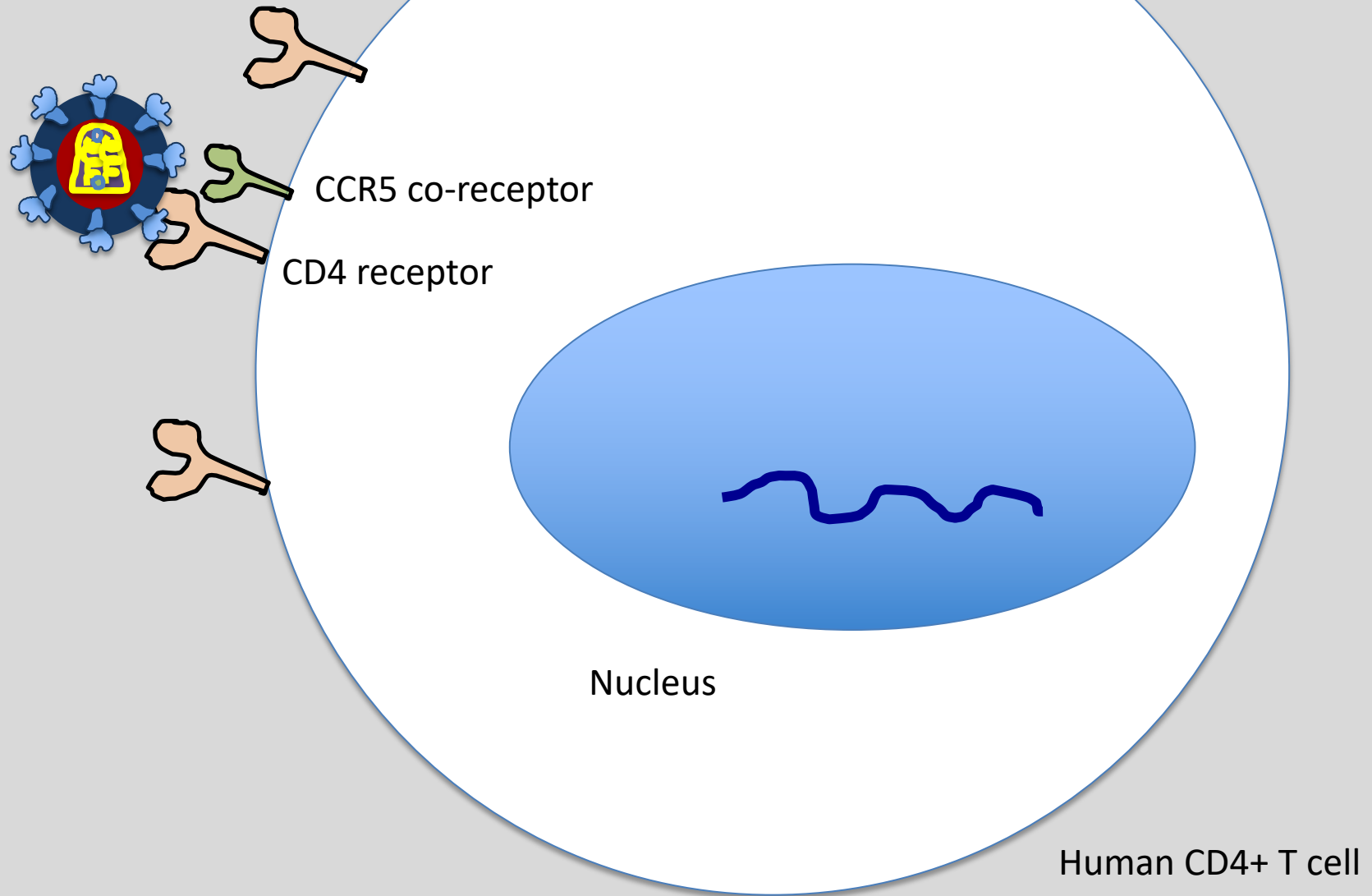
HIV



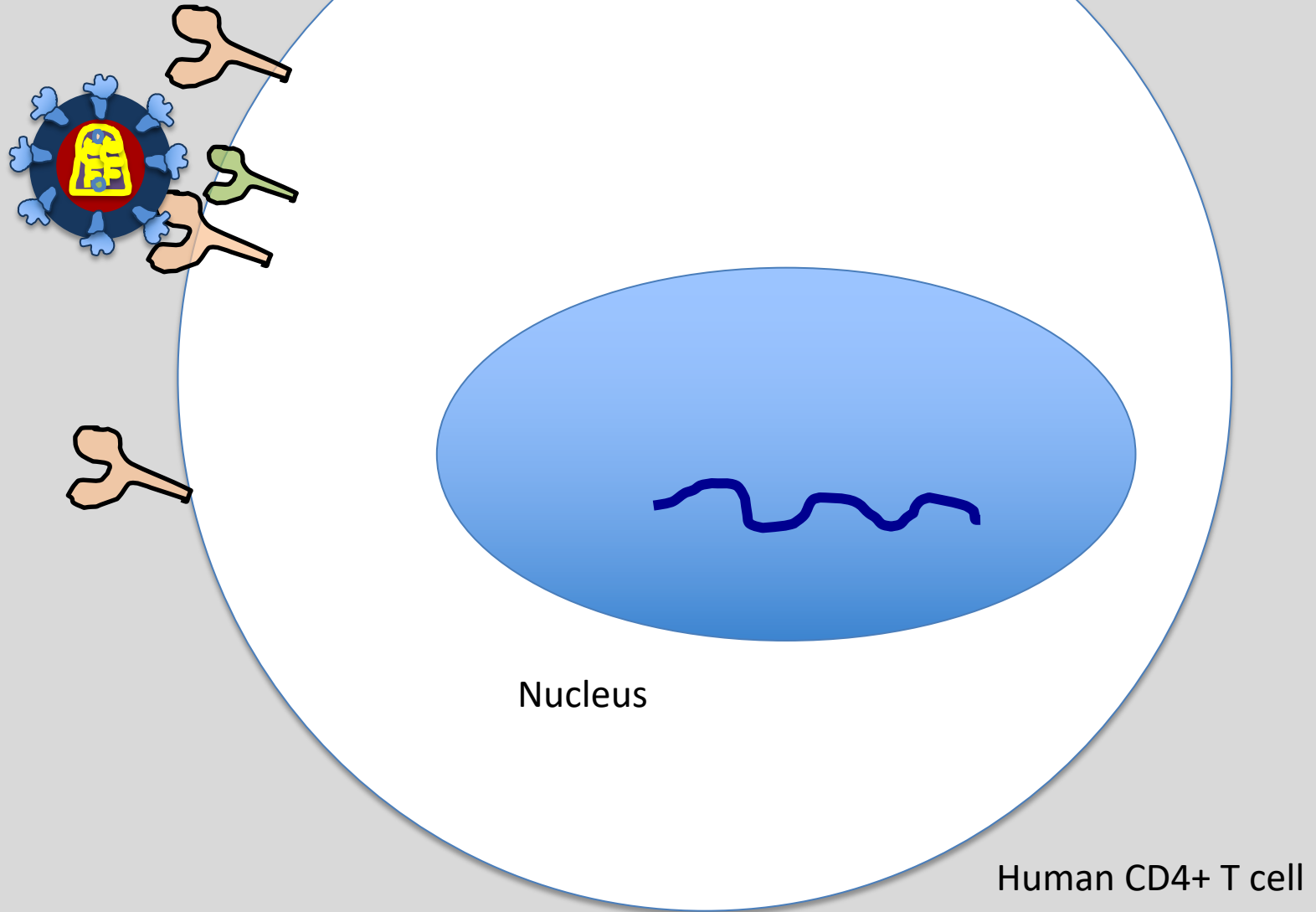
Nucleus

Human CD4+ T cell

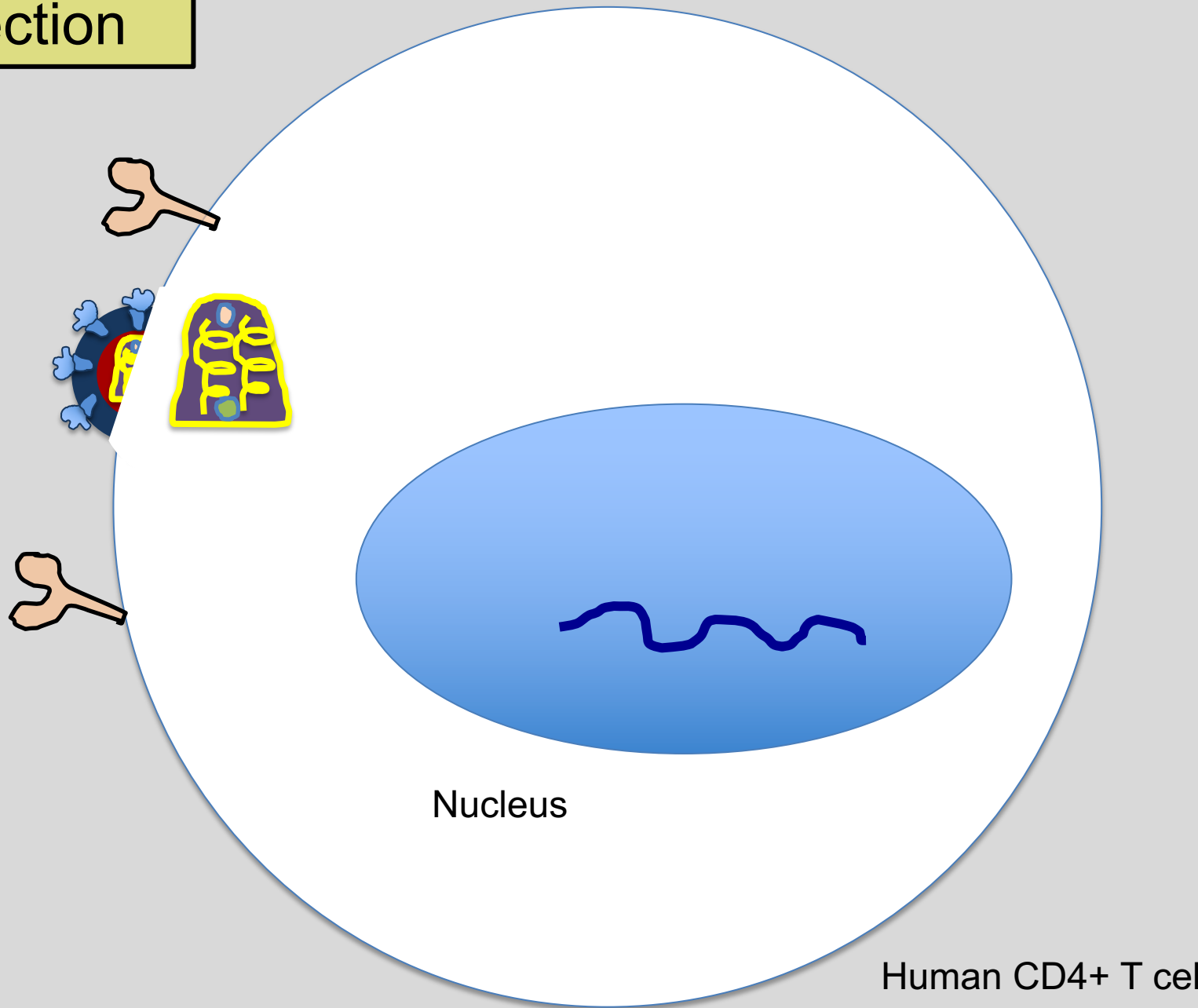
HIV Infection



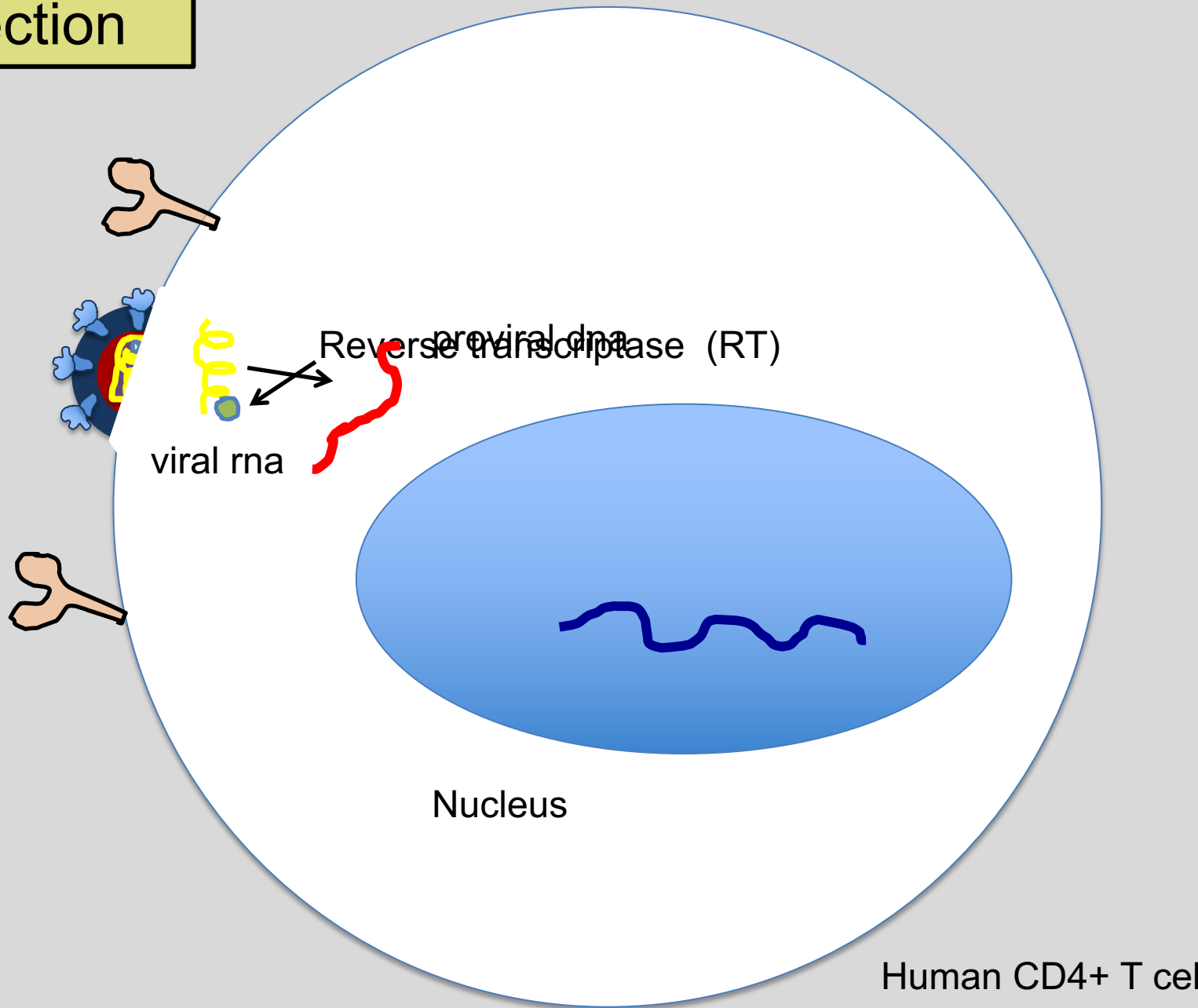
HIV Infection



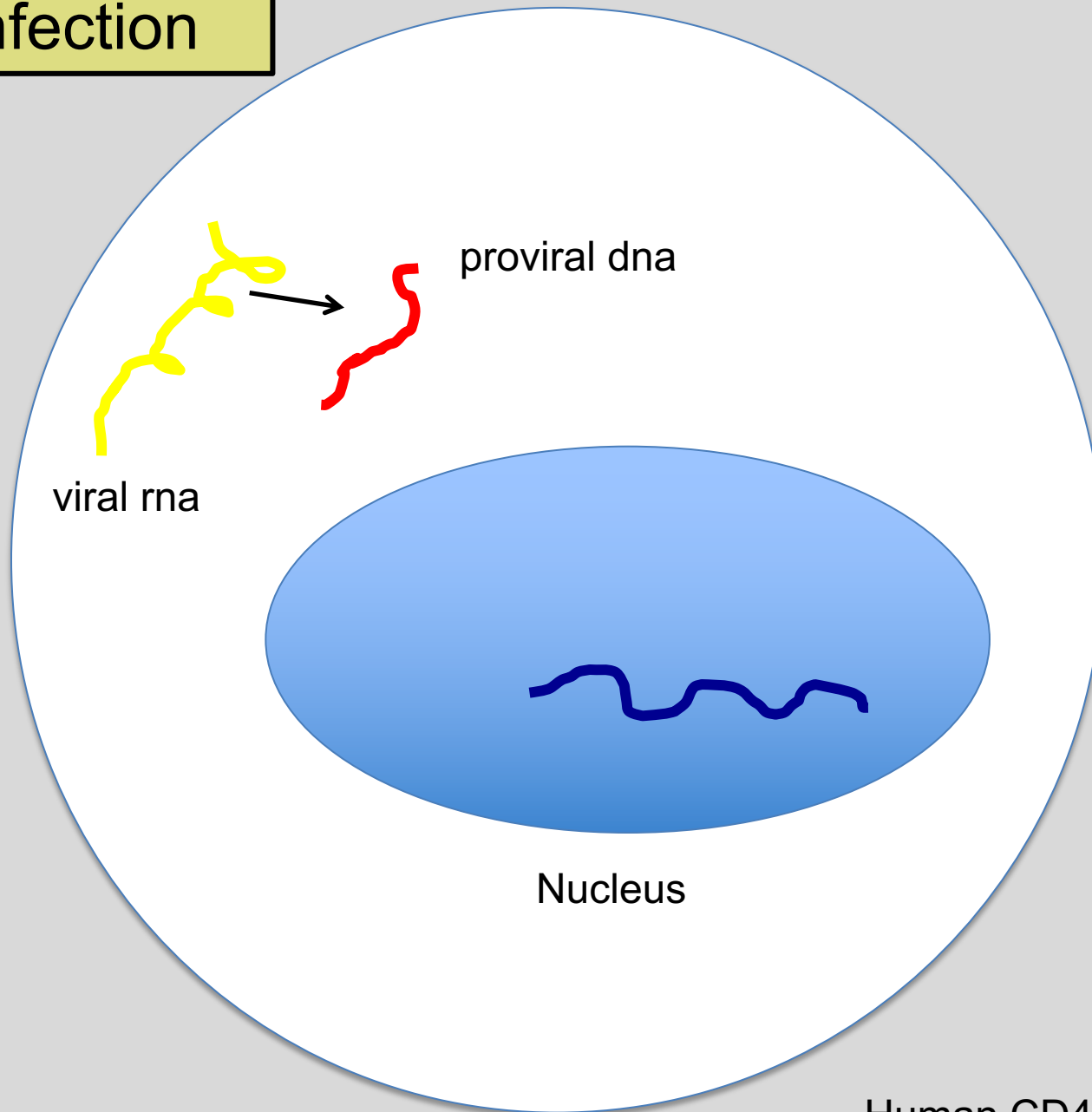
HIV Infection



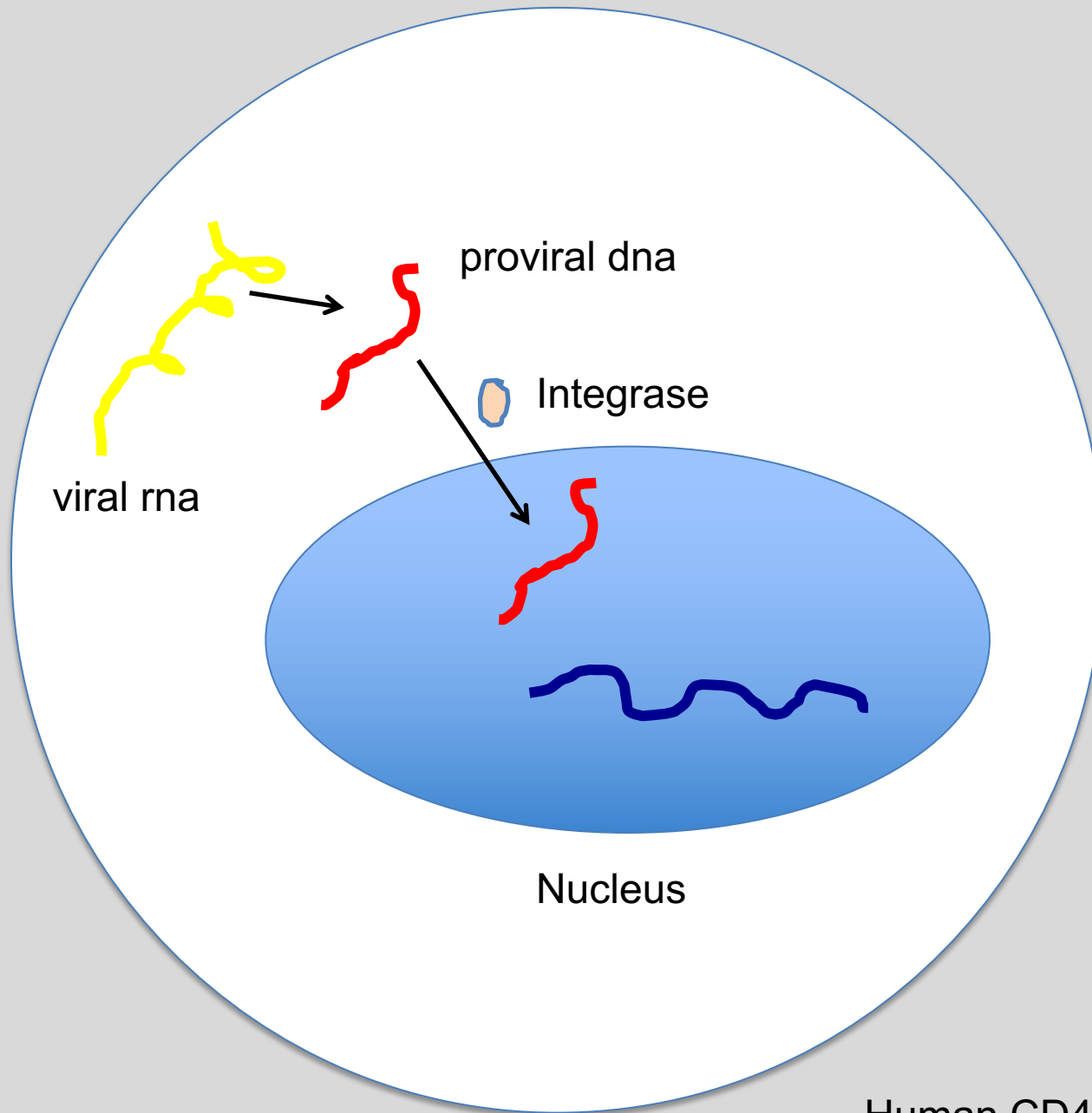
HIV Infection



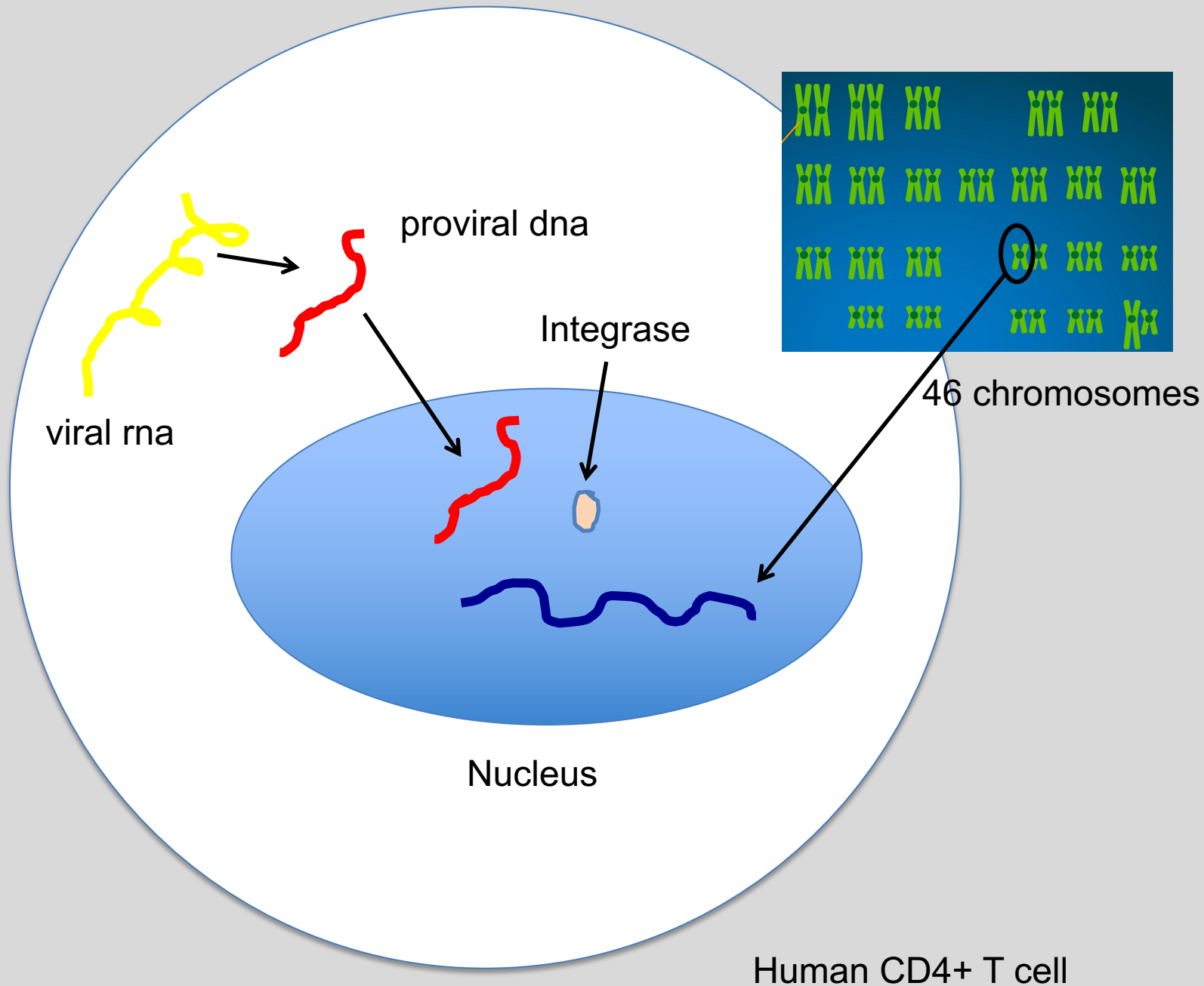
HIV Infection



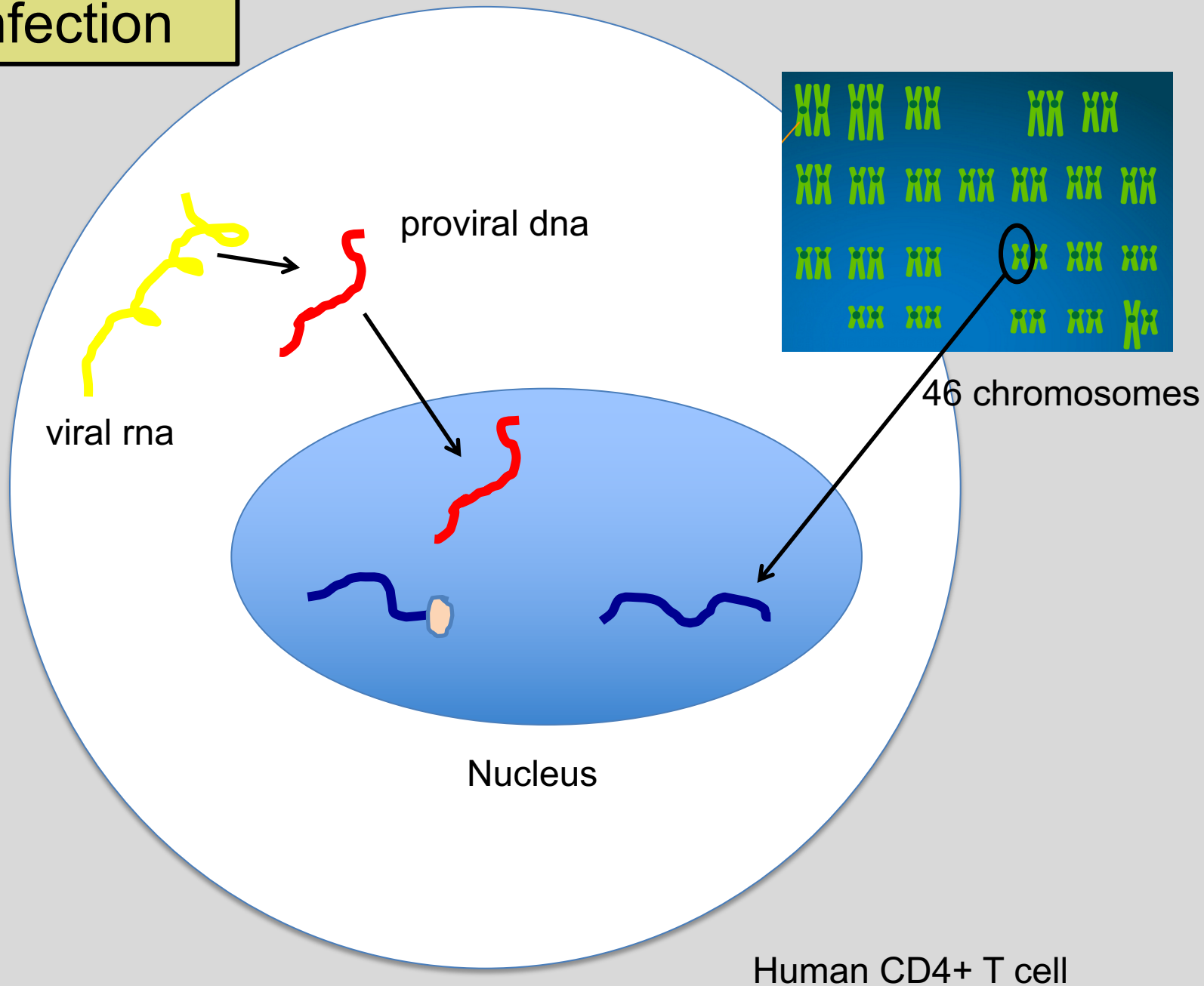
Human CD4+ T cell



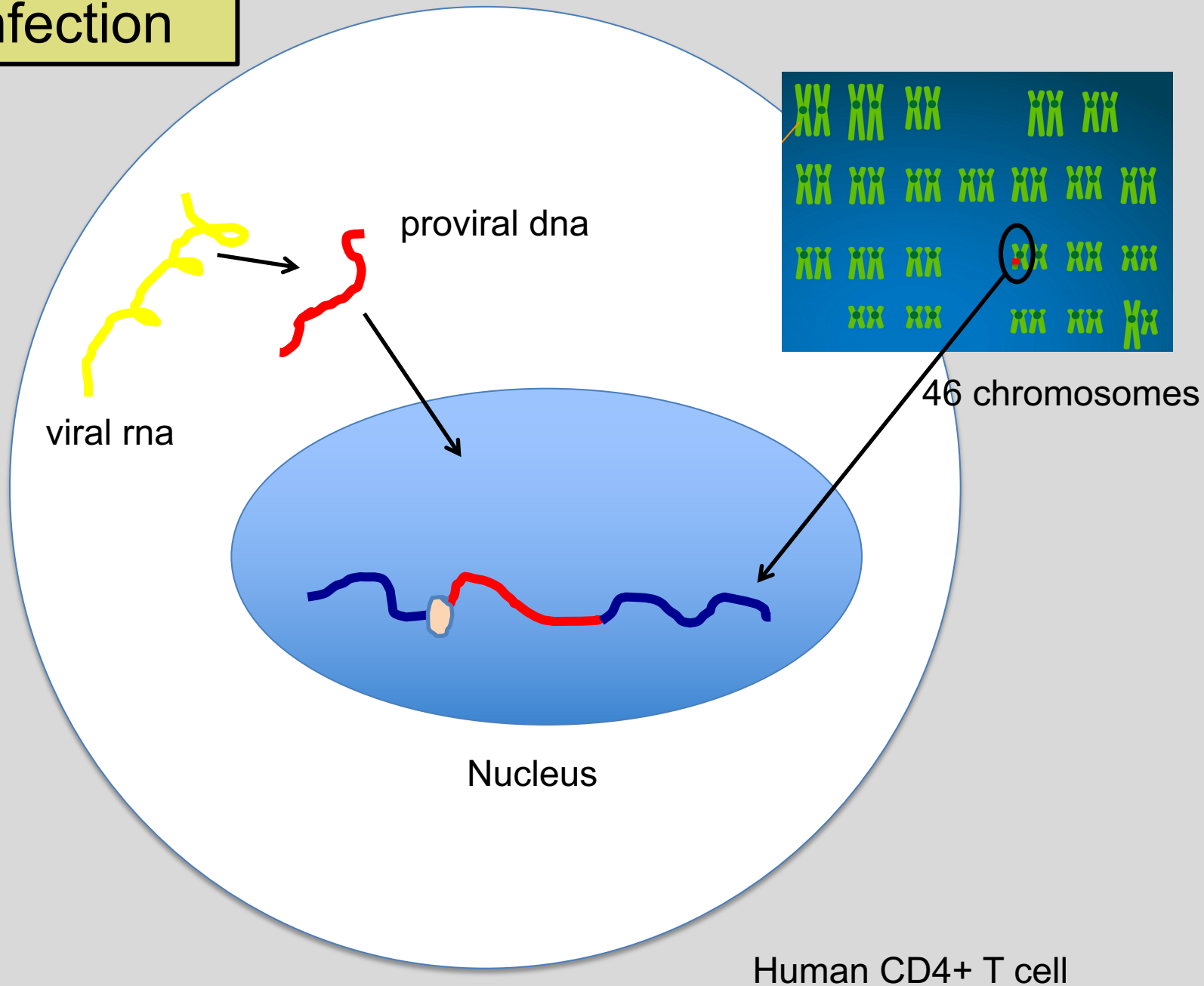
Human CD4+ T cell



HIV Infection

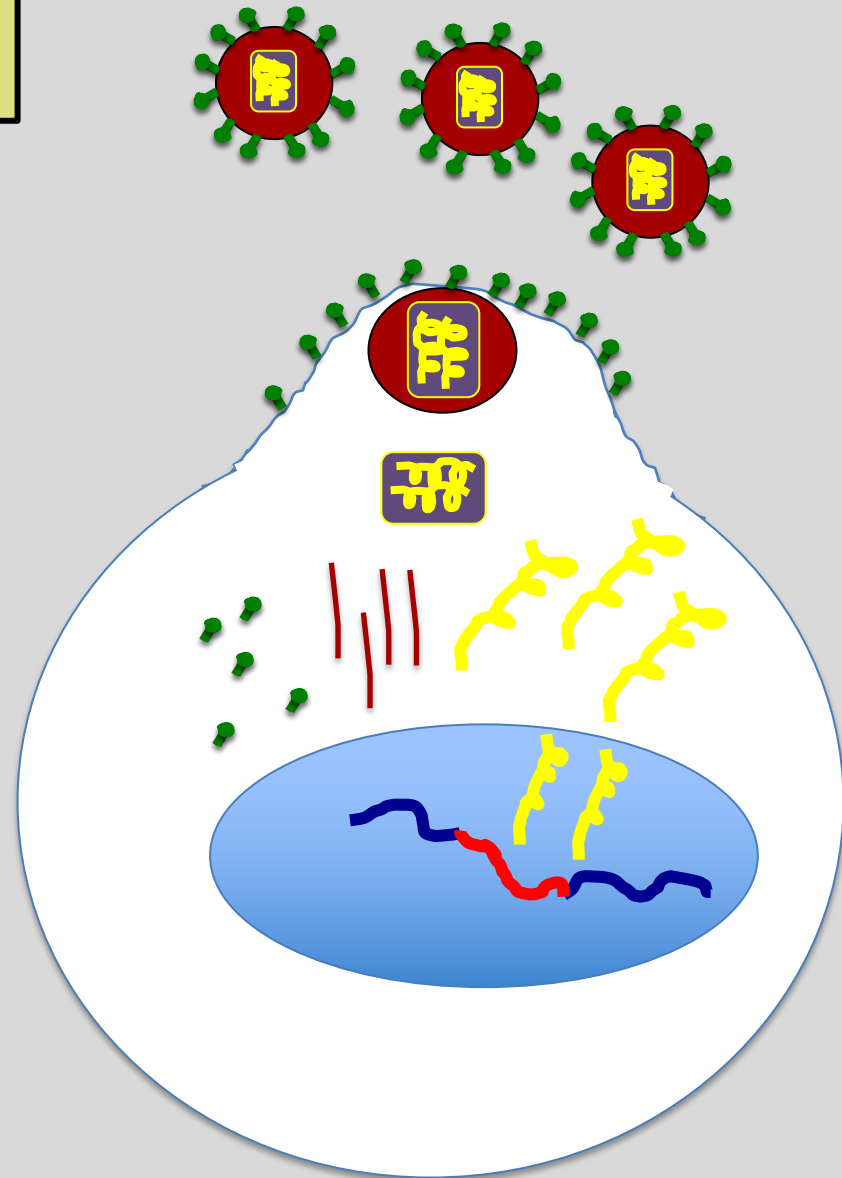


HIV Infection

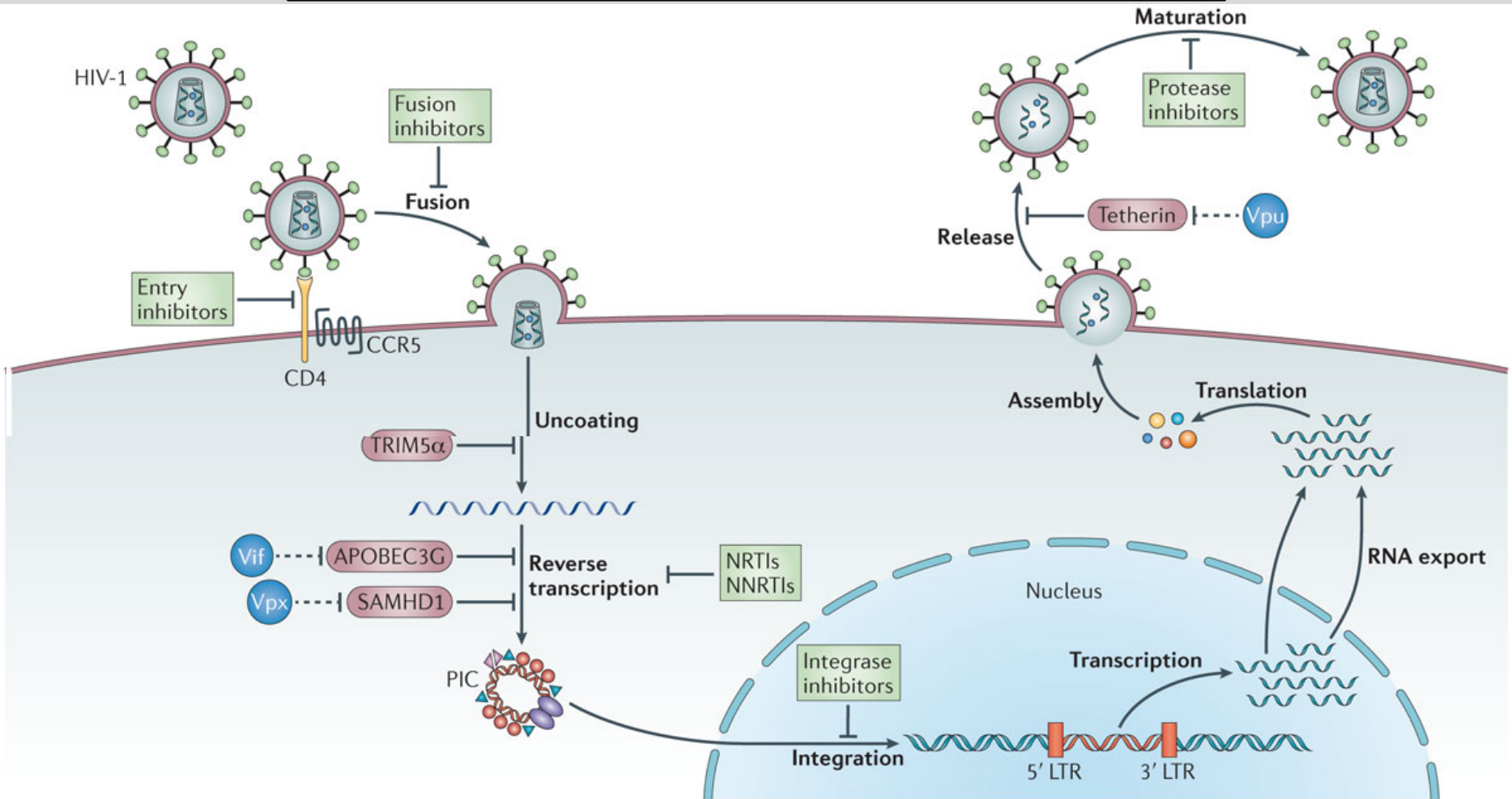


HIV

Replication/Maturation/ Budding

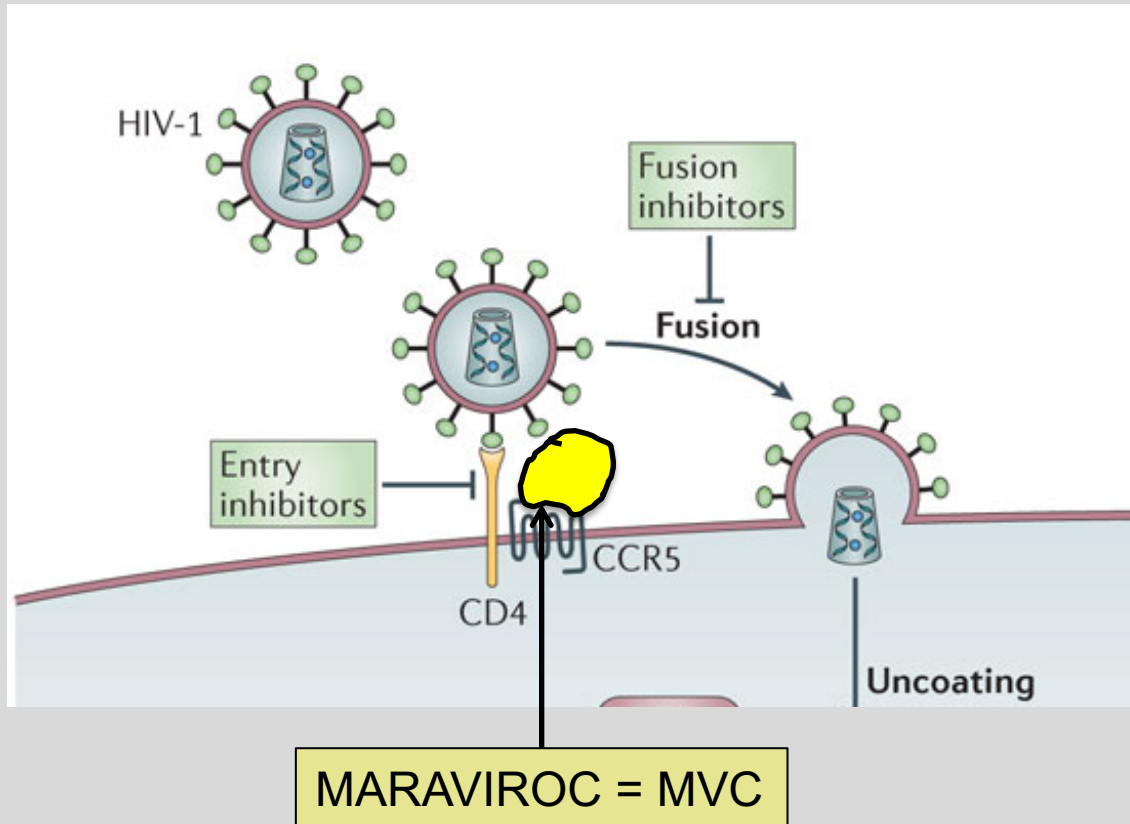


ART MECHANISMS



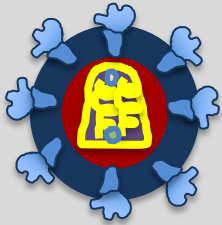
Nature Reviews | Microbiology

FUSION/ENTRY INHIBITORS

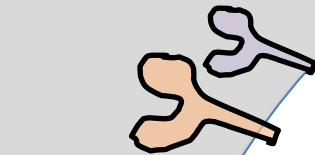


HIV Infection

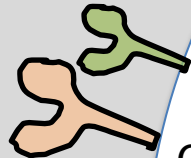
TROFILE ASSAY = "MIXED" OR "WILD-TYPE"



HIV



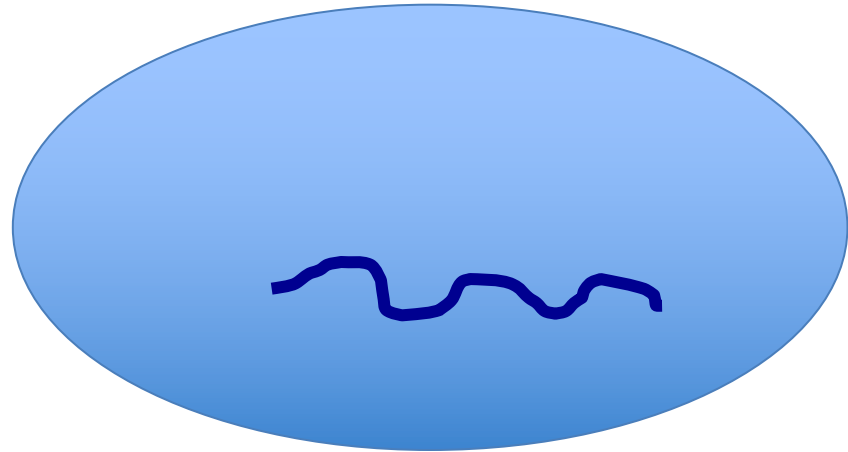
CXCR4 co-receptor



CCR5 co-receptor



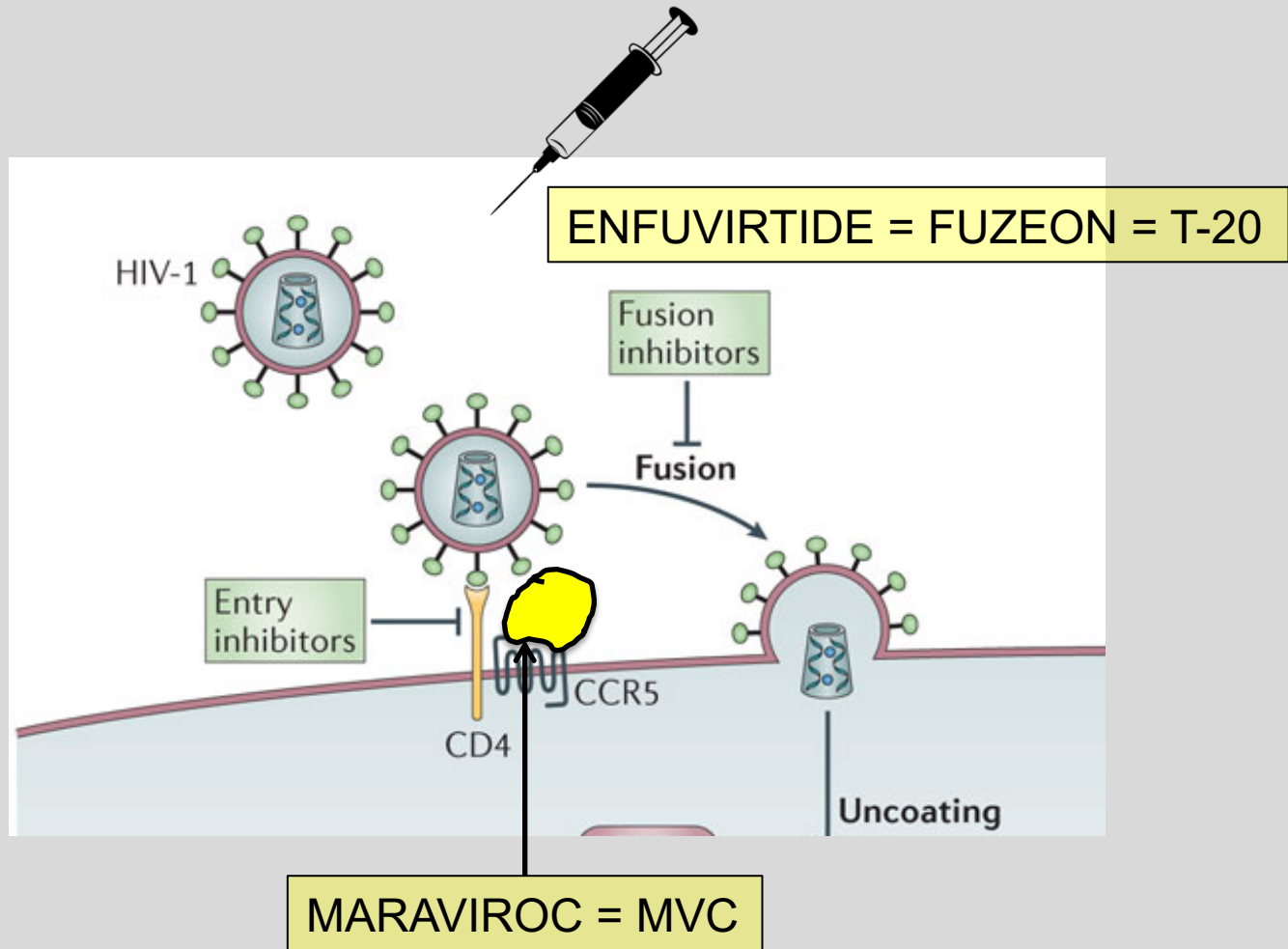
CD4 receptor



Nucleus

Human CD4+ T cell

FUSION/ENTRY INHIBITORS



FUSION/ENTRY INHIBITORS

Fusion Inhibitor = ENFUVIRTIDE

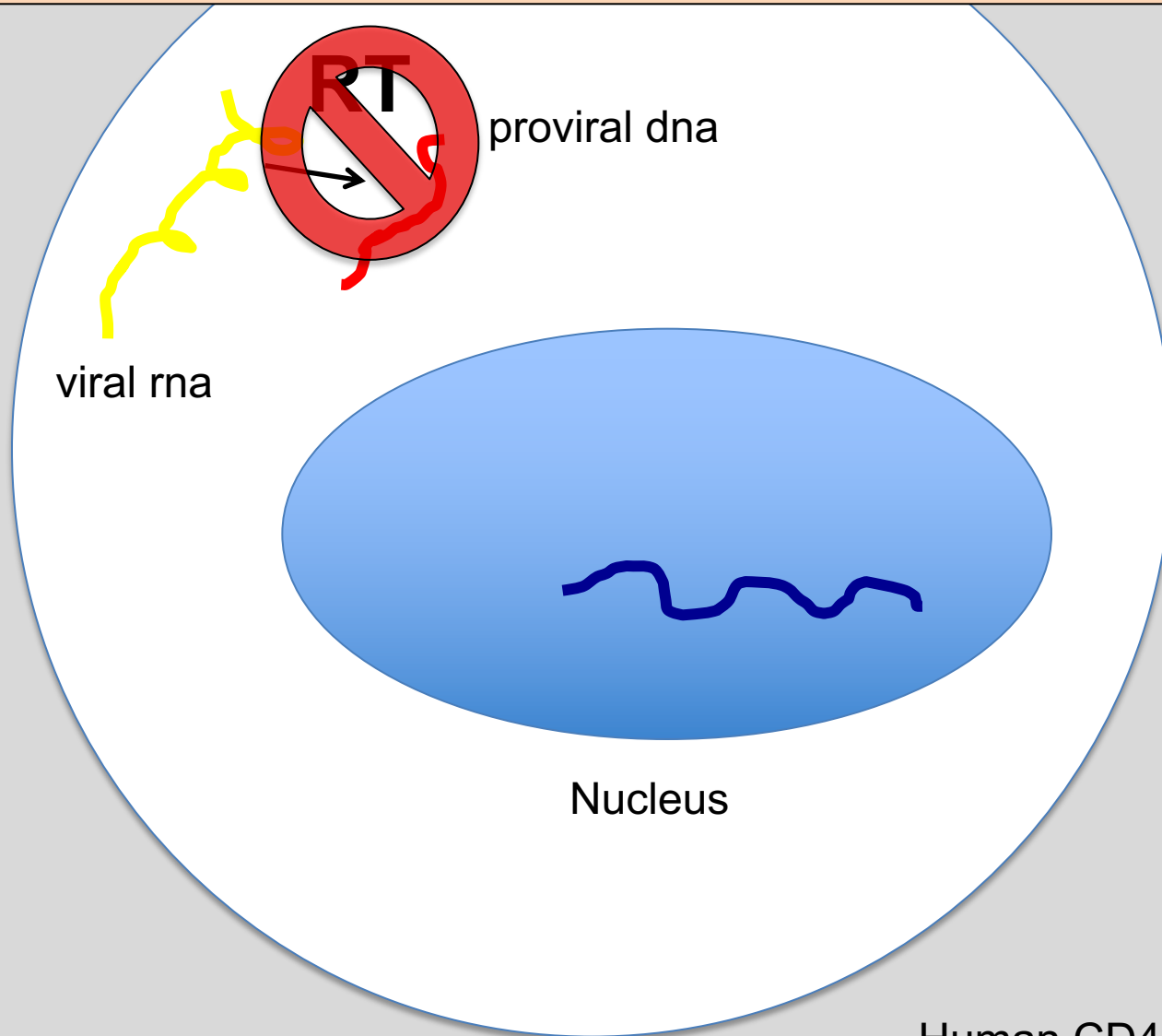


Entry Inhibitor = MARAVIROC

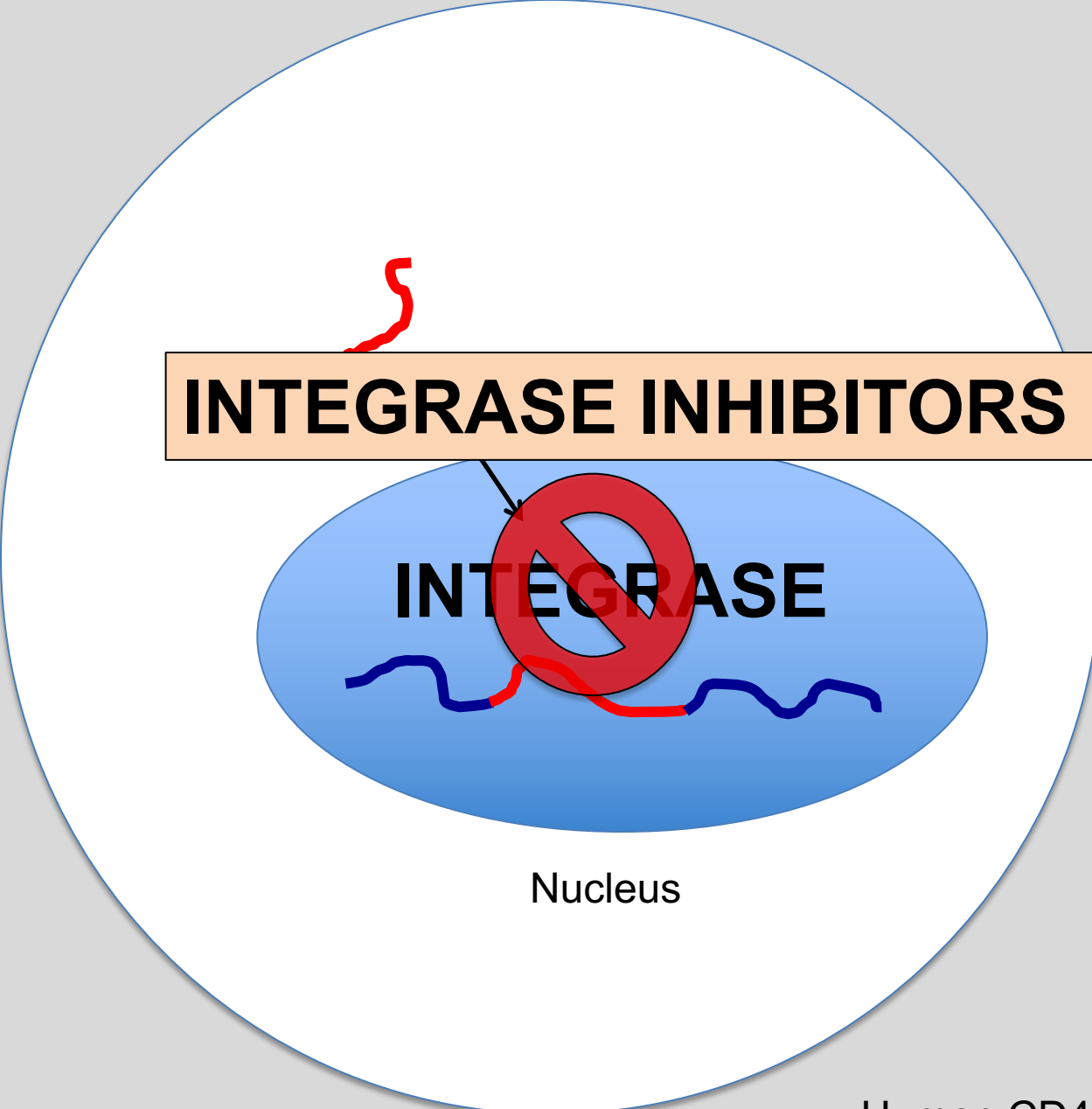
(MUST HAVE CCR5-TROPIC VIRUS)

TROFILE ASSAY

REVERSE TRANSCRIPTASE INHIBITORS



Human CD4+ T cell



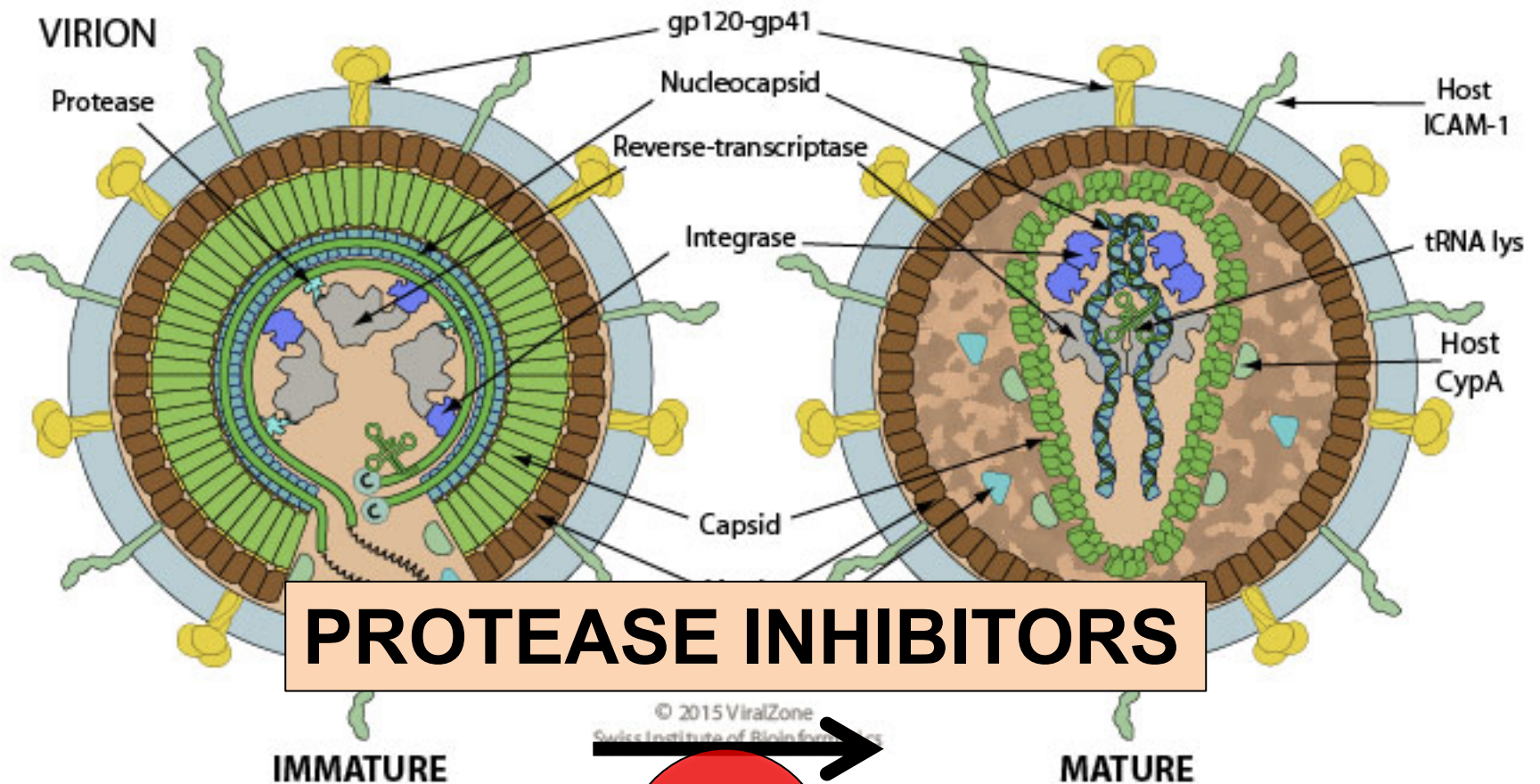
The diagram shows a large white circle representing a cell. Inside, a blue oval represents the nucleus. A red squiggly line enters the cell from the top, passes through the nucleus, and exits at the bottom. Inside the nucleus, a blue squiggly line is shown. A red circle with a diagonal slash (a prohibition sign) is placed over the word 'INTEGRASE'. An arrow points from the top of this red circle to the word 'INTEGRASE' in the orange box above. The orange box contains the text 'INTEGRASE INHIBITORS'.

INTEGRASE INHIBITORS

INTEGRASE

Nucleus

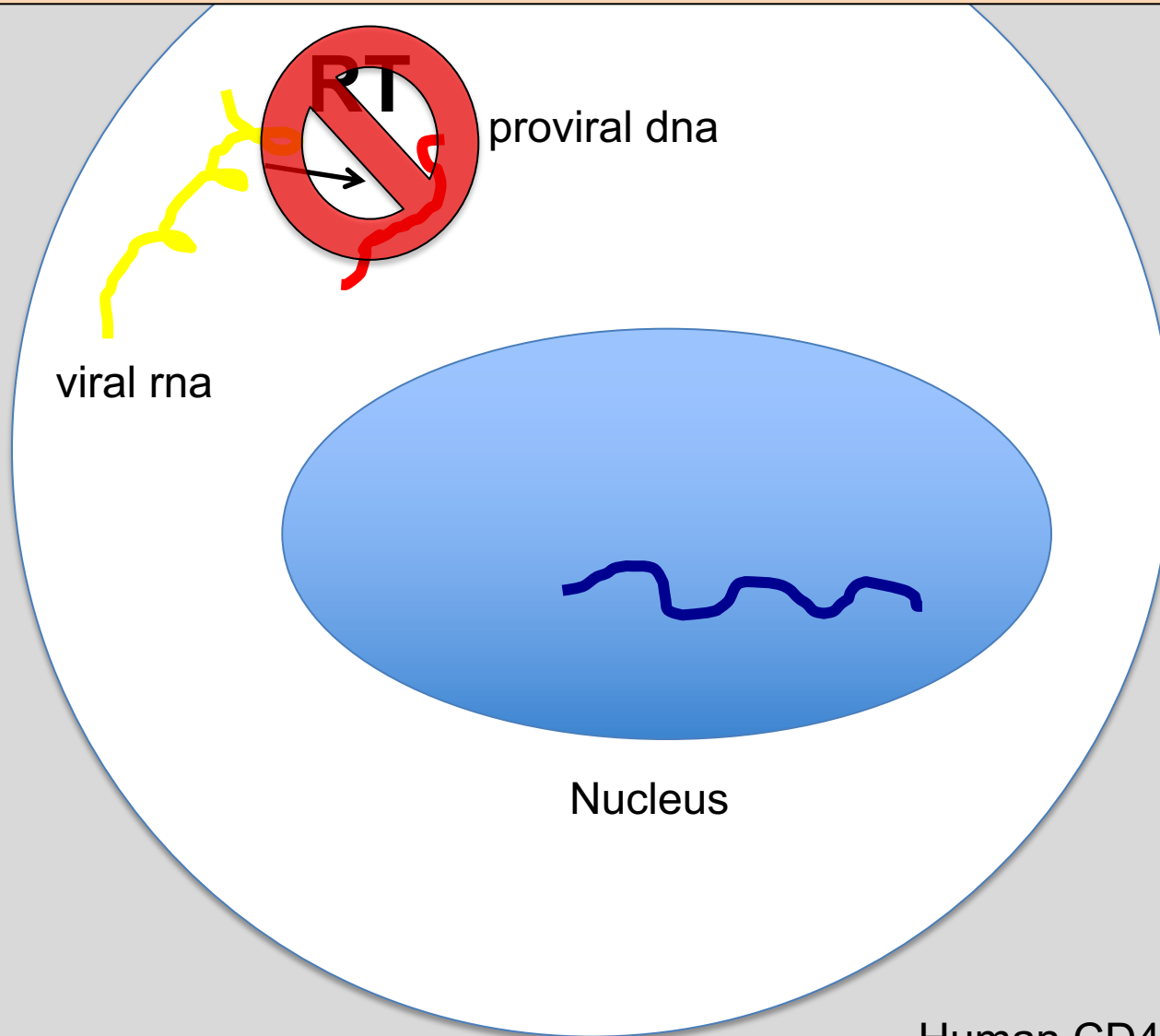
Human CD4+ T cell



PROTEASE

SPECIFIC DRUG NAMES AND THEIR MECHANISMS

REVERSE TRANSCRIPTASE INHIBITORS



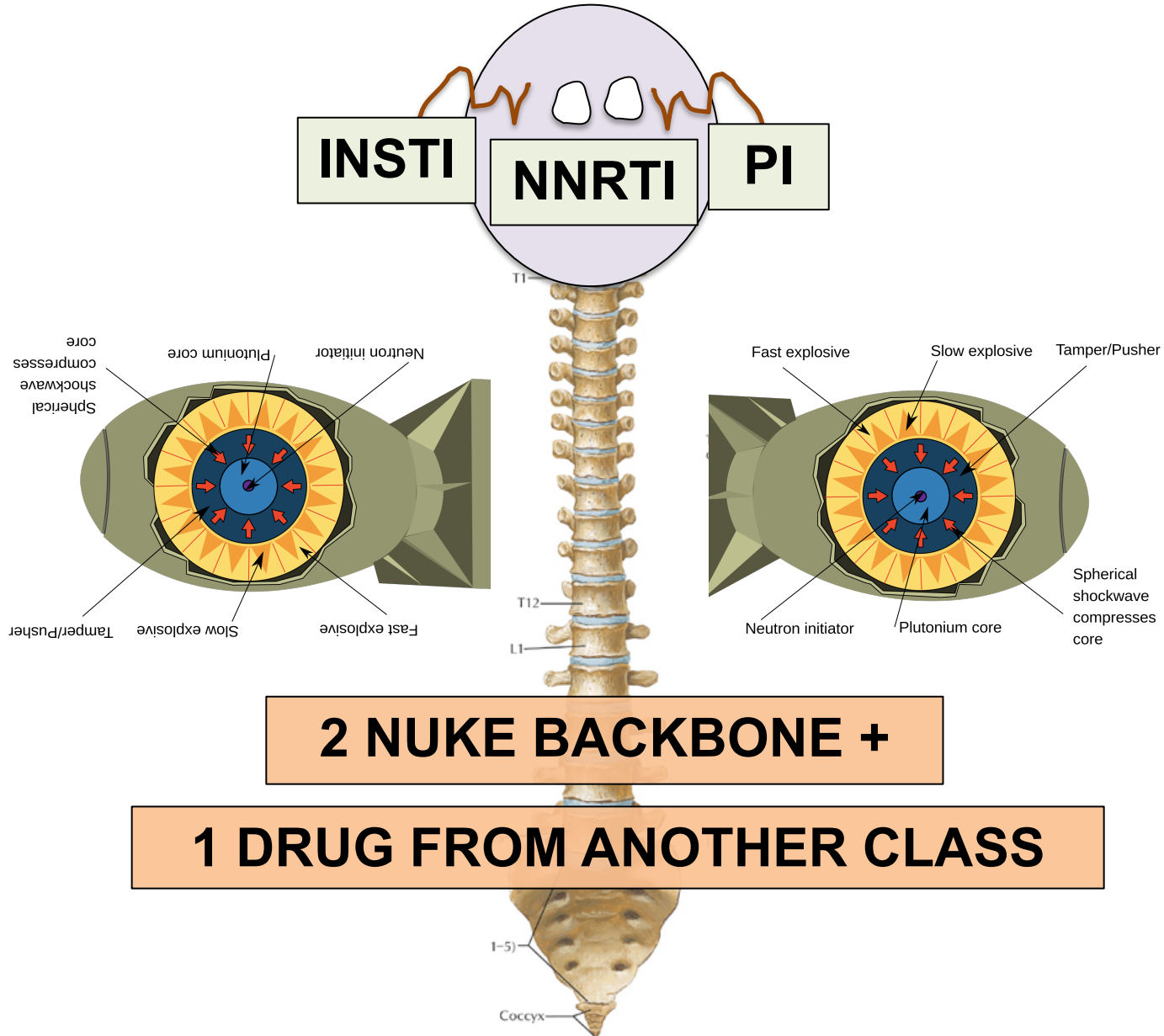
Human CD4+ T cell

REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

BUILDING A 3-DRUG REGIMEN



REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Tenofovir Emtricitabine

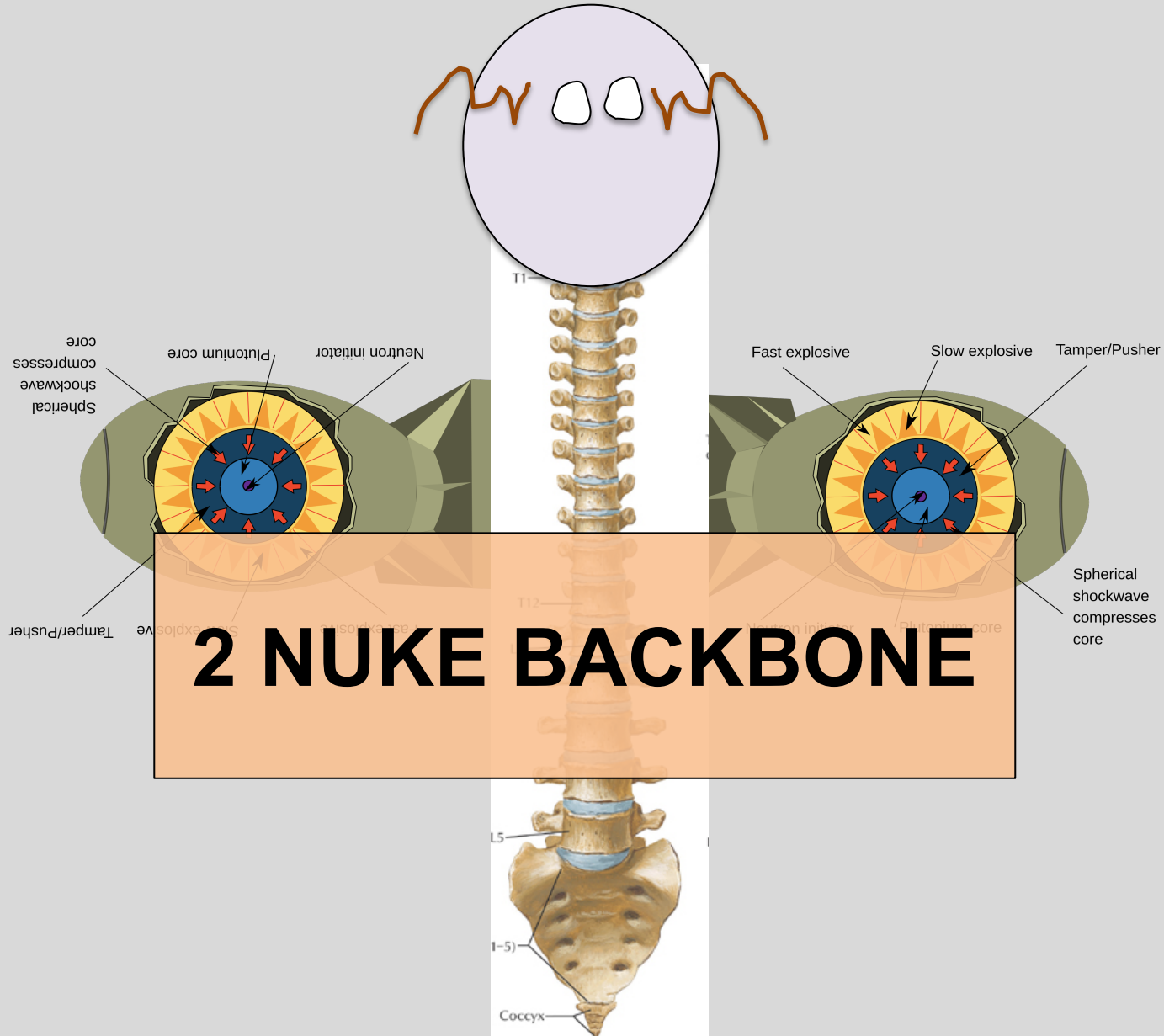
Abacavir Lamivudine

Zidovudine

Didanosine

Stavudine

BUILDING A 3-DRUG REGIMEN



REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Tenofovir

Emtricitabine

=

TRUVADA



Abacavir

Lamivudine

Zidovudine

Didanosine

Stavudine

REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Tenofovir

Emtricitabine

=

TRUVADA



Abacavir

Lamivudine

=

EPZICOM



Zidovudine

Didanosine

Stavudine

REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Tenofovir

Emtricitabine

=

TRUVADA



Abacavir

Lamivudine

=

EPZICOM



Zidovudine

Lamivudine

=

COMBIVIR



Didanosine

Stavudine

REVERSE TRANSCRIPTASE INHIBITORS

NUCLEOSIDE RTIs (NRTIs) = NUKES

NON-NUCLEOSIDE RTIs (NNRTIs) = non-NUKES

Tenofovir

Emtricitabine

=

TRUVADA



Abacavir

Lamivudine

=

EPZICOM



Zidovudine

Lamivudine

=

COMBIVIR



Didanosine

Stavudine

=

CIMDUO



TEMIXYS



REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Abacavir

Lamivudine

=

EPZICOM

=

TRIZIVIR

Zidovudine

Lamivudine

=

COMBIVIR



QUIZ QUESTION 1

QUIZ QUESTION 2

REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Efavirenz

Rilpivirine

Etravirine

Nevirapine

Doravirine

**-VIR-A-SOMETHING
-VIR in the MIDDLE**

REVERSE TRANSCRIPTASE INHIBITORS

NUCLEOSIDE RTIs (NRTIs) = NUKES

Tenofovir Emtricitabine

Abacavir Lamivudine

Zidovudine

Didanosine

Stavudine

No Naming Pattern

NON-NUCLEOSIDE RTIs (NNRTIs) = non-NUKES

Efavirenz

Rilpivirine

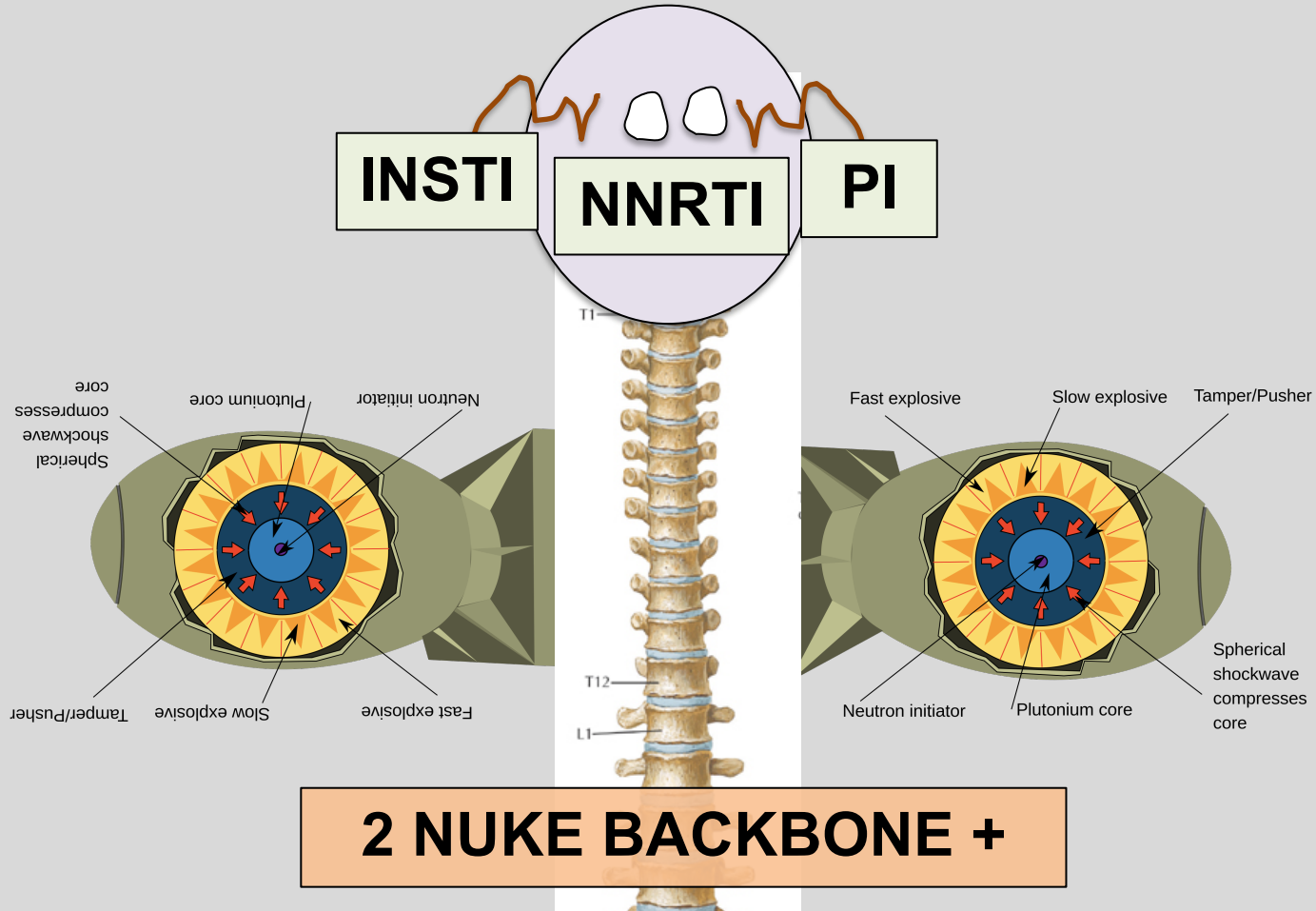
Etravirine

Nevirapine

Doravirine

-VIR-SOMETHING
-VIR in the MIDDLE

BUILDING A 3-DRUG REGIMEN



2 NUKE BACKBONE +

**1 DRUG FROM
ANOTHER CLASS**

REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Tenofovir

Emtricitabine

=

TRUVADA

+

Efavirenz

=

Atripla



REVERSE TRANSCRIPTASE INHIBITORS

**NUCLEOSIDE RTIs
(NRTIs) = NUKES**

**NON-NUCLEOSIDE RTIs
(NNRTIs) = non-NUKES**

Tenofovir

Emtricitabine

=

TRUVADA

+

Efavirenz

=

Atripla



+

Rilpivirine

=

Complera



REVERSE TRANSCRIPTASE INHIBITORS

NUCLEOSIDE RTIs (NRTIs) = NUKES

NON-NUCLEOSIDE RTIs (NNRTIs) = non-NUKES

Tenofovir Emtricitabine = TRUVADA

+

Efavirenz

=

Atripla



+

Rilpivirine

=

Complera



Tenofovir Lamivudine = CIMDUO

+

Doravirine

=

Delstrigo



Tenofovir Lamivudine = CIMDUO

+

=

Symfi



Efavir

=

Symfi Lo

QUIZ QUESTION 3

PROTEASE INHIBITORS: Boosters

Boosters

Darunavir

Atazanavir

Cobicistat

Lopinavir

Indinavir

Fosamprenavir

Tipranavir

Saquinavir

Nelfinavir

Ritonavir

PROTEASE INHIBITORS

Darunavir

Atazanavir

Lopinavir

-NAVIR

Indinavir

Fosamprenavir

Tipranavir

Saquinavir

Nelfinavir

Ritonavir

PROTEASE INHIBITORS: Boosters

Boosters

Ritonavir

Cobicistat

Darunavir/r

Atazanavir/r

Lopinavir/r

Indinavir/r

Fosamprenavir/r

Tipranavir/r

Saquinavir/r

Nelfinavir/r

PROTEASE INHIBITORS: Boosters

Boosters

Ritonavir

Cobicistat

Darunavir

Atazanavir

Lopinavir

Indinavir

Fosamprenavir

Tipranavir

Saquinavir

Nelfinavir

+

=

Kaletra

PROTEASE INHIBITORS: Boosters

Boosters

Prezista

Darunavir +

=

Prezcobix

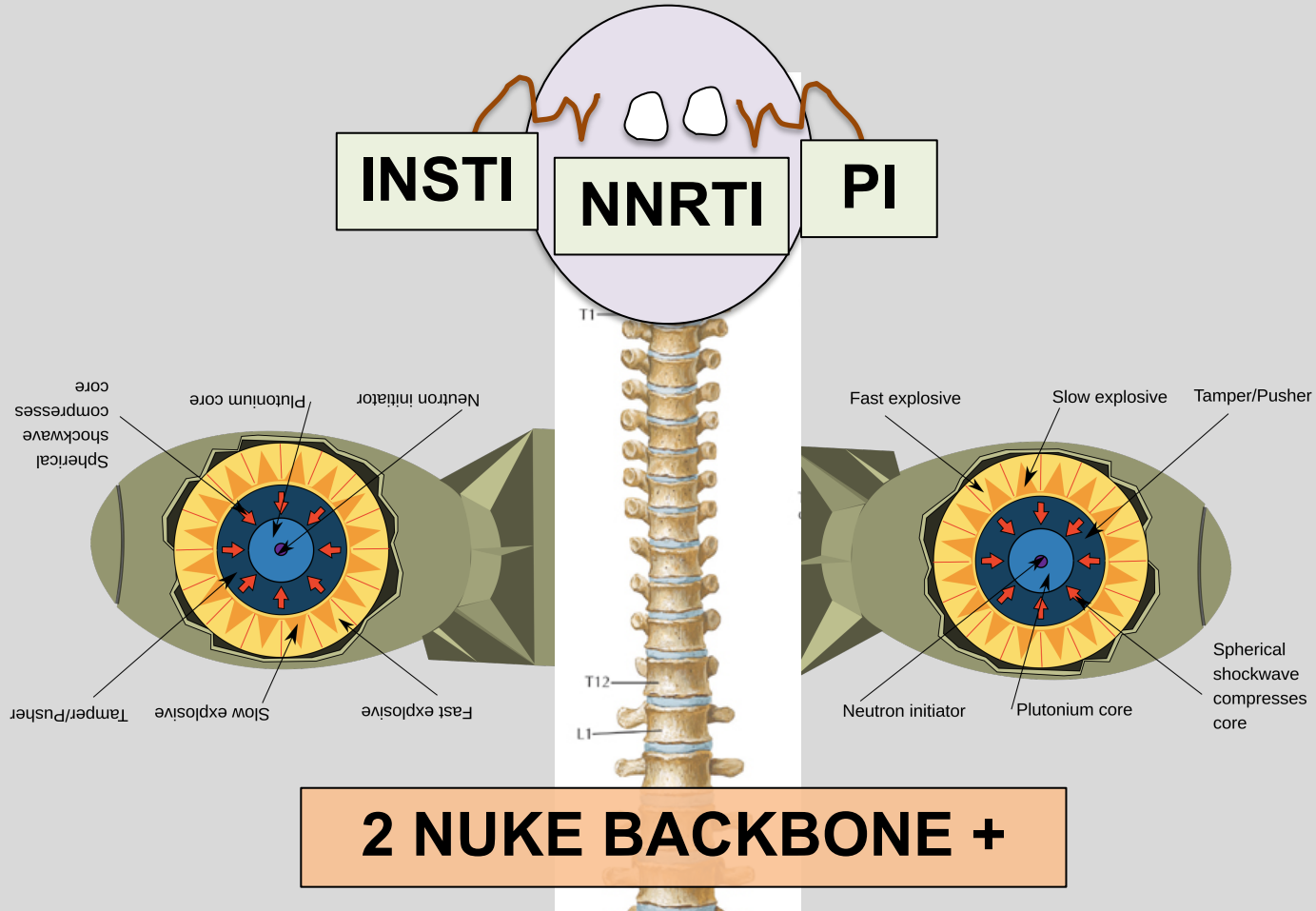


Ritonavir

Atazanavir + Cobicistat

Cobicistat

BUILDING A 3-DRUG REGIMEN



**1 DRUG FROM
ANOTHER CLASS**

INTEGRASE Strand Transfer INHIBITORS “INSTIs”

Raltegravir

-GRAVIR

Elvitegravir

Dolutegravir

Bictegravir

QUIZ QUESTION 4

QUIZ QUESTION 5

QUIZ QUESTION 6

INTEGRASE INHIBITORS

Raltegravir

Elvitegravir +

+

TRUVADA

=

STRIBILD



Dolutegravir +

EPZICOM

=

TRIUMEQ



Bictegravir

Cobicistat

COMBO TIME

NRTIs

TDF

TAF

Abacavir

Emtricitabine

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

Is

ELV/cobi

Dolutegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

Booster

Cobicistat

TRUVADA

COMBO TIME

NRTIs

Tenofovir

Abacavir

Emtricitabine

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

IIs

ELV/cobi

Dolutegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

Booster

Cobicistat

ATRIPLA

COMBO TIME

NRTIs

Tenofovir

Abacavir

Emtricitabine

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

Is

ELV/cobi

Dolutegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

Booster

Cobicistat

COMPLERA

COMBO TIME

NRTIs

Tenofovir

Abacavir

Emtricitabine

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

IIs

ELV/cobi

Dolutegravir

Bictegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

Booster

Cobicistat

STRIBILD

COMBO TIME

NRTIs

Tenofovir

Abacavir

Emtricitabine

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

Is

ELV/cobi

Dolutegravir

Bictegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

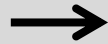
Booster

Cobicistat

TRIUMEQ

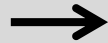
3 LETTER ABBREVIATIONS: NRTIs

ZIDOVUDINE



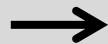
AZT

LAMIVUDINE



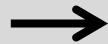
3TC

EMTRICITABINE



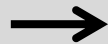
FTC

TENOFOVIR



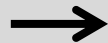
TDF

ABACAVIR



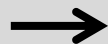
ABC

DIDANOSINE



ddI

STAVUDINE



d4T

3 LETTER ABBREVIATIONS: NRTIs and NNRTIs

ZIDOVUDINE	→	AZT	EFAVIRENZ	→	EFV
LAMIVUDINE	→	3TC	RILPIVIRINE	→	RPV
EMTRICITABINE	→	FTC	ETRAVIRINE	→	ETV
TENOFOVIR	→	TDF	NEVIRAPINE	→	NVP
ABACAVIR	→	ABC	DORAVIRINE	→	DOR
DIDANOSINE	→	ddI			
STAVUDINE	→	d4T			

3-LETTER ABBREVIATIONS: PIs AND IIs

PROTEASE INHIBITORS

DARUNAVIR



DRV

ATAZANAVIR



ATV

INTEGRASE INHIBITORS

RALTEGRAVIR



RAL

ELVITEGRAVIR



EVG

DOLUTEGRAVIR



DTG

BICTEGRAVIR



BIC

BRAND NAME

TIVICAY

QUIZ QUESTION 7

Let's talk about TAF

TDF = Tenofovir disoproxil fumarate

TAF = Tenofovir alafenamide

TAF COMBOS

Tenofovir

Emtricitabine

=

TRUVADA

TRU

TAF

Emtricitabine

=

DESCOVY

TRUF

TAF COMBOS

TRUVADA (TRU)

+

Rilpivirine

=

COMPLERA



DESCOVY (TRUF)

+

Rilpivirine

=

ODEFSEY



TRUVADA (TRU)

+

ELV/cobi

=

STRIBILD



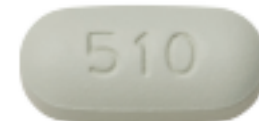
DESCOVY (TRUF)

+

ELV/cobi

=

GENVOYA



DESCOVY (TRUF)

+

BICTEGRAVIR

=

BIKTARVY



DESCOVY (TRUF)

+

DARUNAVIR/COBI

=

SYMTUZA



TAF COMBO TIME

NRTIs

TDF

TAF

Abacavir

Emtricitabine

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

Is

ELV/cobi

Dolutegravir

Bictegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

Booster

Cobicistat

DESCOVY

TAF COMBO TIME

NRTIs

TDF

Abacavir

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

TAF

Emtricitabine

DESCOVY

IIs

ELV/cobi

Dolutegravir

Bictegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

BIKTARVY

Booster

Cobicistat

TAF COMBO TIME

NRTIs

TDF

Abacavir

Lamivudine

Zidovudine

NNRTIs

Efavirenz

Rilpivirine

IIs

ELV/cobi

Dolutegravir

Bictegravir

PIs

Darunavir

Atazanavir

Lopinavir

Ritonavir

Booster

Cobicistat

TAF

Emtricitabine

DESCOVY

PREZCOBIX

SYMTUZA

QUIZ QUESTION 8

QUIZ QUESTION 9

QUIZ QUESTION 10

3- DRUG THERAPY: SINGLE TABLET REGIMENS

NRTIs

NNRTIs

Is

PIs

TRUVADA

+

Efavirenz

=

Atripla

ELV/cobi

=

Stribild

+

Rilpivirine

=

Complera

TDF/3TC

+

Doravirine

=

Delstrigo

+

Efavirenz

=

Symfi (Lo)

DESCOVY

+

Rilpivirine

=

Odefsey

ELV/cobi

=

Genvoya

DRV/cobi

=

Symtuza

BIC

=

Biktarvy

EPZICOM

+

Dolutegravir

=

Triumeq

2- DRUG THERAPY: THE NEW WORLD ORDER

NRTIs

NNRTIs

Is

PIs

Rilpivirine

+

Dolutegravir

=

JULUCA

Lamivudine

+

Dolutegravir

=

DOVATO

WHAT TO START ?

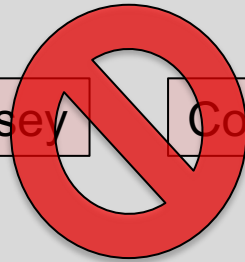
NEED TO EAT

Genvoya

STRIBILD

Odefsey

Complera



DOESN'T MATTER

BIKTARVY

DESCOVY

DTG

TRU

DTG

TRIUMEQ

WHAT TO START ?

NEED TO EAT

~~Genvoya~~

~~STRIBILD~~

Odefsey

Complera

DOESN'T MATTER

BIKTARVY

DESCOVY

DTG

TRU

DTG

TRIUMEQ

Certain inhaled/nasal steroids
Certain HCV regimens
Lower dosing of statins

WHAT TO START ?

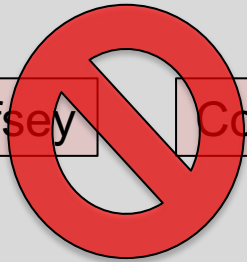
NEED TO EAT

Genvoya

STRIBILD

Odefsey

Complera



PPIs, Seizure meds, Rifampin

DOESN'T MATTER

BIKTARVY

DESCOVY

DTG

TRU

DTG

TRIUMEQ

WHAT TO START ?

NEED TO EAT

Genvoya

STRIBILD

Odefsey

Complera

DOESN'T MATTER

BIKTARVY

~~DESCOVY DTG~~

~~TRIUMEQ~~

~~TRUVADA DTG~~

Twice daily dosing of DTG with rifampin; lower dosing of Metformin while on DTG

WHAT TO START ?

NEED TO EAT

Genvoya

STRIBILD

Mg⁺⁺, Ca⁺⁺, Fe⁺⁺

DOESN'T MATTER

BIKTARVY

DESCOVY

DTG

TRIUMEQ

TRU

DTG

EXERCISE

EFAVIRENZ

ELVITEGRAVIR

RILPIVIRINE

RILPIVIRINE

DTG

DORAVIRINE

EMTRICITABIN
E

DRV/COBI

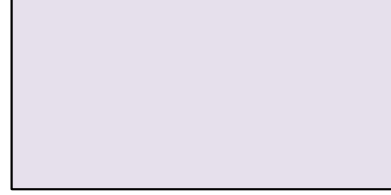
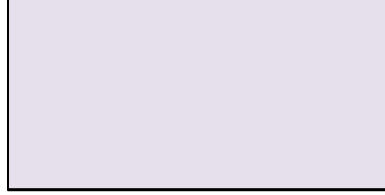
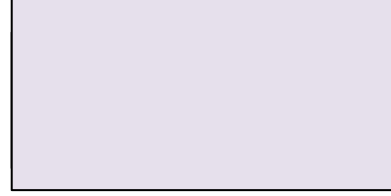
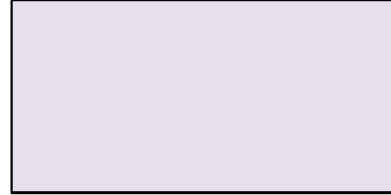
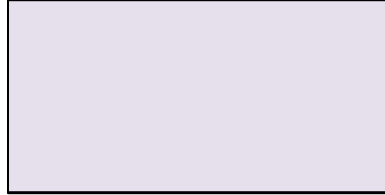
TAF/FTC

RILPIV/DTG

LAMIVUDINE

BICTEGRAVIR

MORE FUN



3- DRUG THERAPY: SINGLE TABLET REGIMENS

NRTIs

NNRTIs

Is

PIs

TRUVADA

+

Efavirenz

=

Atripla

ELV/cobi

=

Stribild

+

Rilpivirine

=

Complera

TDF/3TC

+

Doravirine

=

Delstrigo

+

Efavirenz

=

Symfi (Lo)

DESCOVY

+

Rilpivirine

=

Odefsey

ELV/cobi

=

Genvoya

DRV/cobi

=

Symtuza

BIC

=

Biktarvy

EPZICOM

+

Dolutegravir

=

Triumeq

Submit an Evaluation of Today's Conference:

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Open the "UW
Infectious Disease
Reference Kit"

Select "Evaluations"

OR



Scan me

MUTATIONS

M184V

EMTRICITABINE



LAMIVUDINE



TENOFOVIR



K103N

EFAVIRENZ



NEVIRAPINE

