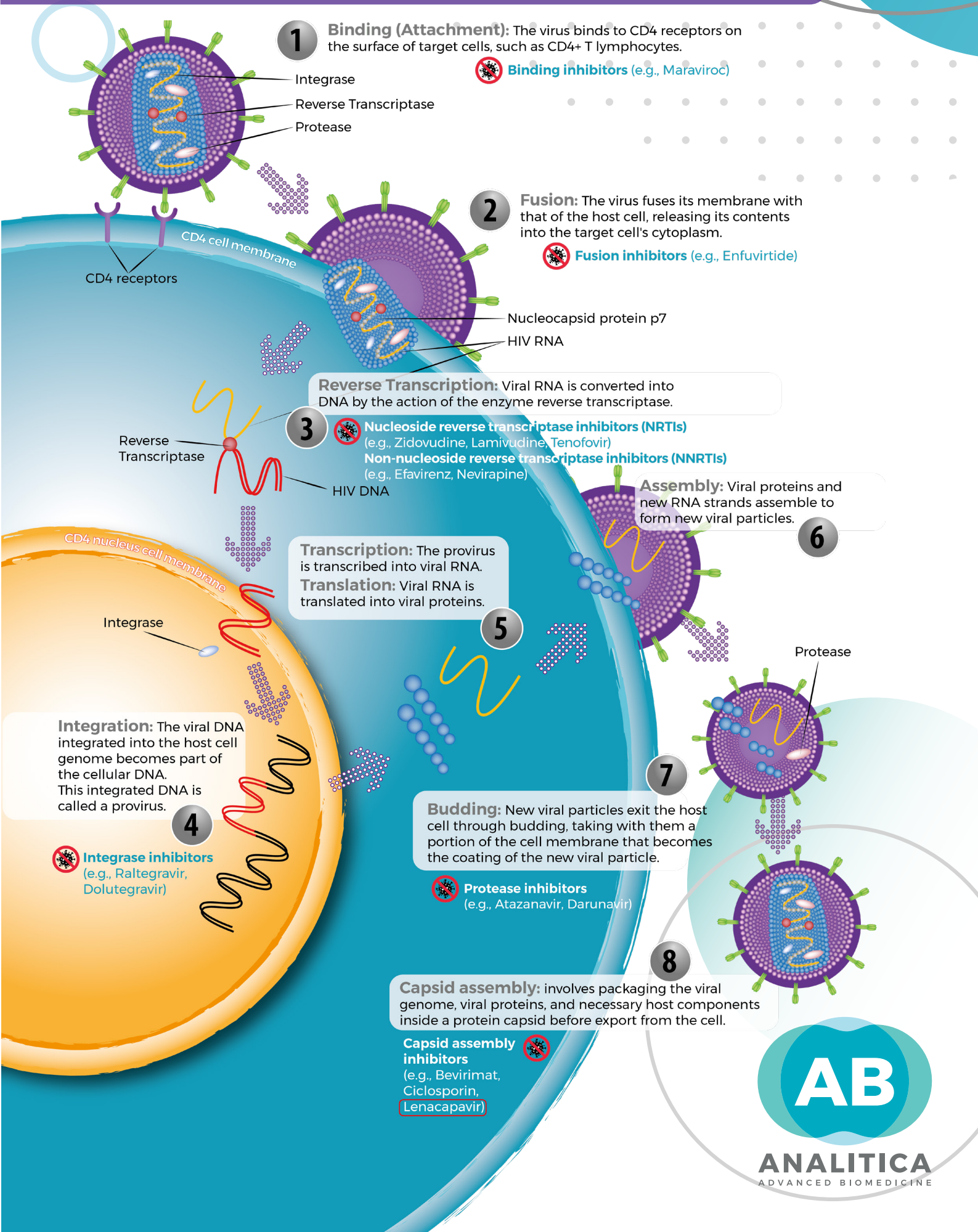


DeepChek[®] HIV Genotyping & Drug Resistance Sequencing Assays



DEEPCHEK® Software Meets all clinical needs



Features:

- CE-IVD.
- For both Capillary Sanger (chromatogram editor integrated) and Next Generation Sequencing NGS genetic analyzers.
- Database / storage.
- Report customization.
- Historical data import.
- HdS Cloud - Highest degree of isolation and data protection, including compliance with ISO 27001 and General Data Protect Regulation (GDPR) requirements.
- Hosting: Local servers or Cloud (including Health Data Hosting compliance).
- Access for an unlimited number of users.
- Annual license with unlimited number of analyses.

Returned information:

- Major & Minor variants detection.
- Genotyping, Drug resistance and Tropism interpretation.
- Complete and comprehensive clinical genotyping report.
- Cumulative and Longitudinal genotyping report.
- APOBEC mutations detection.
- Viral or bacterial drug resistance.
- Vaccine escape and disease prognosis.
- Viral genotype.
- Useful for tailoring patient's antiviral or antibacterial drugs based on the virus or bacteria sensitivity level.

DEEPCHEK® HIV Software

Sanger
Clinical genotyping

NGS
Clinical genotyping

Cumulative
Clinical genotyping

Longitudinal
Clinical genotyping

APOBEC
Detection

ABL **ViroScore**

Patient/Sample information

Your patient ID: [redacted]
 Patient Name: [redacted]
 Patient birth date: [redacted]
 Patient viral load: [redacted]
 Your sample ID: DEMO SANGER

Analysis RT-PROT
 Clinician name: [redacted]
 Type of sample: Plasma
 Date of sample: 06/05/2024
 Report date: 06/05/2024 15:13:12
 Report version: 13.6
 Date format: dd/mm/yyyy

All Mutations Detected (HXB2 reference Sequence) Resistance mutations in bold based on HIVdb v9.5 (mutation score ≥ 6)

Regions	Date of sequencing	Genotyping method	Mutations
RT	06/05/2024	RT	R93K, K164R, E122K, D125G, S162H, D177E, R211K, L214F, T215F
PROT	06/05/2024	PROT	V3L, L191, E35D, S37N, L63P

Genotypic interpretation (HIVdb-9.6)

Class	Drug	Resistance	Prevalence %	Q-Score
NRTI	Zidovudine	R	99.81	58
	Didanosine	S	99.88	58
	Stavudine	S	99.43	58
	Lamivudine	S	99.71	59
	Emtricitabine	S	99.71	59
NNRTI	Etravirine	S	99.86	58
	Nevirapine	S	99.86	58
	Rilpivirine	S	99.86	58
	Doravirine	S	99.86	58
PI	Atazanavir	S	99.86	58
	Tenofovir	S	99.86	58
	Saqinavir	S	99.86	58
	Darunavir	S	99.86	58

Comments

RT: T215F are TAMs that causes intermediate-high level resistance to AZT and potentially low-level resistance to ABC and TDF.

ABL **ViroScore**

Patient/Sample information

Your patient ID: [redacted]
 Patient Name: [redacted]
 Patient birth date: [redacted]
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PROT	06/05/2024	PROT	V3L, L191, E35D, S37N, L63P

Genotypic interpretation (ANRS-35, HIVdb-9.6)

Class	Drug	Resistance	Prevalence %	Q-Score
NRTI	Zidovudine	R	99.81	58
	Didanosine	S	99.88	58
	Stavudine	S	99.43	58
	Lamivudine	S	99.71	59
	Emtricitabine	S	99.71	59
NNRTI	Etravirine	S	99.86	58
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	Doravirine	S	99.86	58
PI	Atazanavir	S	99.86	58
	Tenofovir	S	99.86	58
	Saqinavir	S	99.86	58
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Comments

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 Patient Name: [redacted]
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 Patient viral load: [redacted]
 Your sample ID: DEMO SANGER

Analysis RT-PROT
 Clinician name: [redacted]
 Type of sample: Plasma
 Date of sample: 14/06/2023
 Report date: 06/05/2024 15:18:49
 Report version: 13.6

CUMULATIVE & HISTORY REPORT - VIROSCORE PLUS (Mutations based)

Regions	Date of sequencing	Genotyping method	Mutations
RT	14/06/2023	RT	R93K, K164R, E122K, D125G, S162H, D177E, R211K, L214F, T215F
PROT	14/06/2023	PROT	V3L, L191, E35D, S37N, L63P

Genotypic interpretation (ANRS-35, HIVdb-9.6)

Class	Drug	Resistance	Prevalence %	Q-Score
NRTI	Zidovudine	R	99.81	58
	Didanosine	S	99.88	58
	Stavudine	S	99.43	58
	Lamivudine	S	99.71	59
	Emtricitabine	S	99.71	59
NNRTI	Etravirine	S	99.86	58
	Nevirapine	S	99.86	58
	Rilpivirine	S	99.86	58
	Doravirine	S	99.86	58
PI	Atazanavir	S	99.86	58
	Tenofovir	S	99.86	58
	Saqinavir	S	99.86	58
	Darunavir	S	99.86	58

Comments

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Genotypic interpretation

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PI	Atazanavir	S	99.86	58
	Tenofovir	S	99.86	58
	Saqinavir	S	99.86	58
	Darunavir	S	99.86	58

Mutations detected not at relevant positions

Class	Date	Sample name	Mutations not at relevant positions
RT	06/05/2024	PosF	10E, 14R, 43I, 72I, 101I, 112A, 122S, 124T, 127K, 193E, 201I, 279G
PROT	06/05/2024	DNA3	46I, 102E, 110I, 148I, 239I, 256I, 310I, 326I, 370I, 397I, 1031I, 1125I, 1139I, 1235I, 124T, 125A, 127K, 147E, 200M, 201I, 234F
RT	06/05/2024	Echantillon1	59I, 72I, 101I, 112V, 119P, 122S, 125A, 127K, 134D, 139E, 139Q, 206S, 234I, 235E, 256E, 283G
RT	06/05/2024	DNA3	122K, 211K, 214F, 245E, 256E, 281E, 314I, 326I, 381I, 439I
PROT	06/05/2024	Echantillon1	20R, 32R, 35T, 49R, 60I, 122K, 162I, 173A, 174K, 177E, 178M, 200A, 207D, 211A, 214F, 245Q, 272A, 277K, 281K, 286A, 291D, 292V, 293V, 301A, 310I, 312Q
PROT	06/05/2024	Echantillon1	3I, 13V, 36I, 41K, 68K

ABL **ViroScore**

Patient/Sample information

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DeepChek® - HIV Mutation Analysis

HIV Protease mutations

Position	Mutation	15.00%	10.00%	5.00%	Prevalence %	Q-Score
3	V+I	✓	✓	✓	99.81	58
16	L+I	✓	✓	✓	99.88	58
16	G+A	✓	✓	✓	99.43	58
25	D+N	✓	✓	✓	99.71	59
35	E+K	✓	✓	✓	99.71	59
36	M+I	✓	✓	✓	99.71	59
37	S+D	✓	✓	✓	99.71	59
37	S+N	✓	✓	✓	99.71	59
40	G+E	✓	✓	✓	99.86	58
41	D+K	✓	✓	✓	99.86	58
46	M+I	✓	✓	✓	99.86	58
49	G+E	✓	✓	✓	99.86	58
49	D+E	✓	✓	✓	99.86	58
60	D+K	✓	✓	✓	99.86	58
61	Q+E	✓	✓	✓	99.86	58
63	L+I	✓	✓	✓	99.86	58
67	C+K	✓	✓	✓	99.86	58
69	H+K	✓	✓	✓	99.86	58
77	V+I	✓	✓	✓	99.86	58
78	G+E	✓	✓	✓	99.86	58
89	L+M	✓	✓	✓	99.86	58

DeepChek® - HIV APOBEC activity assessment

The following 25 APOBEC mutations have been detected (≥ 15.00%)

PROT	Mutations
RT	D5N (33.46%), G40E (33.49%), G78E (32.47%)
INT	E42K (33.25%), W71* (34.54%), E78K (35.23%), W87* (35.02%), G93K (34.44%), D115N (34.73%), W153* (35.19%), D168N (33.94%), G180K (33.09%), W212* (35.04%), G212E (35.74%), G239K (33.37%), G259H (32.05%), G273E (34.43%), E302K (33.46%), E344K (33.03%), G352E (31.58%), D354N (29.44%), E378K (25%), W410* (34.69%), W414* (34.24%)
PROT	E287K (35.45%)

The following 3 DRMs could reflect APOBEC activity (≥ 15.00%)

PROT	DRMs
RT	M46I (32.27%)
RT	D67N (32.86%), E138K (35.49%)

ALL ANALYSES
Subtyping, Mutations detection,
Tropism, Resistance

ALL GUIDELINES
HIVdb, ANRS, HIV Grade,
Geno2Pheno, REGA, ...

ALL DRUGS
NRTI, NNRTI, PI, Integrase Inh,
Entry Inh, Fusion Inh, Capsid Inh

ALL MUTATIONS
COVERED

DeepChek[®] HIV Assays

Quality and Efficiency Redefined



HIV Whole Genome

Capsid resistance assessment
(Lenacapavir)



Drug resistance assessment

All classes including new entry & capsid inhibitors



Proviral DNA

Exactly the same workflow and APOBEC mutations detection



98/79/CE (IVDD)

The Whole Genome HIV-1 Genotyping is also CE-IVD certified



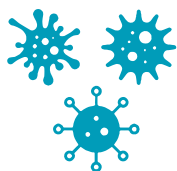
High sensitivity

LoD of 1000 cp/mL (down to 150 cp/mL through dedicated protocols) [V2.x assays]



Coverage

9719 bp High accuracy and reliability (DeepChek[®] Whole Genome HIV-1 Genotyping)



Pooling

Pool several DeepChek[®] Libraries (samples) from different applications in the same NGS run



NGS & SANGER

The same kit available for both Sanger and Next Generation Sequencing



Fast library prep.

Extremely fast library preparation protocol for prompt results and reduced manual intervention

Additional assays and reagents for sequencing

ABL

Advanced
Biological
Laboratories

DeepChek® Assays - Amplification kits

Target	Assays	Ref. N°	Rxns	Cert.
HCV GT	DeepChek® Assay NS5B / 5'UTR Genotyping V3.x *	110C24	24	RUO
	DeepChek® Assay CORE Genotyping V1.x *	109A24	24	RUO
HCV DR	DeepChek® Assay NS5A Genotyping and Drug Resistance V1.x *	105A24	24	RUO
	DeepChek® Assay NS5A (GT2) Drug Resistance V1.x *	106A24	24	RUO
	DeepChek® Assay NS3 Genotyping and Drug Resistance V1.x *	108A24	24	RUO
HBV	DeepChek® Assay NS5B Genotyping and Drug Resistance V4.x *	107D24	24	RUO
	DeepChek® Assay RT Genotyping and Drug Resistance V1.x *	113A24	24	RUO
	DeepChek® Assay Whole Genome HBV Genotyping V1.x	184A24	24	RUO
HDV	DeepChek® Assay Whole Genome HDV Genotyping V1.x	199A24	24	RUO
HPV	DeepChek® Assay HPV Genotyping V1.x	130A24	24	RUO
RSV	DeepChek® Assay Whole Genome RSV Genotyping V1.x	201A24	24	RUO
CMV	DeepChek® Assay UL54 / UL97 Drug Resistance V1.x	117A24	24	RUO
	DeepChek® Assay UL54 / UL56 / UL97 Drug Resistance V2.x	117B24	24	RUO
HSV	DeepChek® Assay TK / POL Drug Resistance V1.x	119A24	24	RUO
16s	DeepChek® Assay 16S rRNA Bacterial Identification V2.x	131B24	24	RUO
18S	DeepChek® Assay 18S rRNA Fungi Identification V1.x	191A24	24	RUO
TB	DeepChek® Assay 13-Plex KB Drug Susceptibility Testing V1.x	128A24	24	CE-IVD
BKV	DeepChek® Assay Whole Genome BKV Genotyping V1.x	189A24	24	RUO
FluA	DeepChek® Assay Whole Genome Influenza A Genotyping V1.x	192A24	24	RUO
FluA/B	DeepChek® Assay Influenza A/B Genotyping V1.x	193A24	24	RUO
COVID-19	DeepChek® Assay Whole Genome SARS-CoV-2 Genotyping V4.x	159D48	48	RUO

*also applicable for Sanger analysis

Sequencing Reagents

Squencing	Name	Reference	Pack size	Cert.
Sanger	DeepChek® SANGER SEQUENCING REACTION V1.x	123A24 / 123A48	24 / 48	RUO
	DeepChek® NGS LIBRARY PREPARATION V2.x	116B24 / 116B48 / 116B96 / 116B384	24 / 48 / 96 / 384	RUO
NGS	DeepChek® ADAPTERS V2.x	124B24 / 124B48 / 124B96 / 124B384	(1-24) / (1-48) / (1-96) / (1-384)	RUO
	DeepChek® NGS LIBRARY PREPARATION V3.x	116C24 / 116C96	24 / 96	RUO
	DeepChek® ADAPTERS V3.x	124C24 / 124C96	(1-24) / (1-96)	RUO
	DeepChek® ADAPTERS V4.x	124D24 / 124D96 / 124D384	(1-24) / (1-96) / (1-384)	RUO
	DeepChek® NGS Clean-up beads	N411-01 / N411-02	5mL / 60mL	RUO