

Original Research Article

Pharmacy

Identification of Probable New Anti-Ebola Virus Drugs

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Abstract

This work is about finding probable new anti-Ebola drugs. A formula [1] is used for that purpose- (Log A/Log B) =64.5/C-H-N-O. Where, C-H-N-O is molecular weight of the Ebola virus antigens. This formula was used to identify probable new anti-HIV drugs [2] and the cause of dementia [3]. Use of the formula [1] -(Log A/Log B) =64.5/C-H-N-O, to identify the constitution of probable anti Ebola drugs. “Log A is Logarithm of molecular weight (elemental atomic weight multiplied by number of molecules of that element) of individual element(s) of drug. Log B is Logarithm of molecular weight of similar element(s) of Deoxy Ribose Nucleic Acid (DNA). C-H-N-O is basic effector. 64.5 Kda is the molecular weight of a complex effector molecule-Haemoglobin. Atomic weight of the element x number of molecules of the same molecule = Molecular weight of that element in either DNA or Drug” [1].

Keywords: Ebola virus, Anti-Ebola drugs, Drug discovery, Molecular weight, Log A/Log B formula, Haemoglobin, DNA.

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INTRODUCTION

Ebola virus has historically ravaged the societies of African continent on and off. Recently, it has affected thousands and killed many in African countries - Democratic Republic of Congo, Sierra Leone, Liberia Guyana etc. Presently, there very few drugs available for

treating Ebola virus infection. In this work, an effort has been made to identify some more probable new anti-Ebola drugs.

MATERIALS METHODS

Formula¹ - (Log A/Log B) =64.5/C-H-N-O

Ebola virus antigens:

S. No	Antigen	Molecular Weight (Kilodaltons)
1	Nucleoprotein	82/83
2	Viral protein	24
3	Viral protein	35
4	Viral protein	40
5	Glycoprotein	50

REVIEW OF LITERATURE

Ebola virus infection has affecting humans for many years. Bats and Primates are its reservoirs. An effective treatment for Ebola is still searched for. This work is also an effort in that direction.

In this work, we have used a formula [1]- (Log A/Log B) =64.5/C-H-N-O to find out constituents of probable drugs against Ebola viral antigens.

This technique was successfully used to identify probable new drugs with anti-HIV effects [2] and dementia effects due to interlocking of Tau 441 with Prion peptide 1 molecules [3].

With more expectations, we are setting out find out probable new anti-Ebola virus drugs.

OBSERVATION

Table 1: Chemical Formula of Human DNA – C₁₅ H₃₁ N₃ O₁₃ P₂ Molecular weight of Haemoglobin: 64.5 Kilodaltons

S No	Chemical Formula	Logarithmic Value of MOL WT of Carbon in DNA	Logarithmic Value of MOL WT of Hydrogen in DNA	Logarithmic Value of MOL WT of Nitrogen in DNA	Logarithmic Value of MOL WT of Oxygen in DNA	Logarithmic Value of MOL WT of Phosphorous in DNA
1	DNA- C ₁₅ H ₃₁ N ₃ O ₁₃ P ₂	2.255	1.491	1.6232	2.31806	0.301

Table 2:

S No	Ebola Virus antigens	Constituents of Probable new anti- Ebola virus drugs
1	Nucleoprotein -82	C ₅ H ₁₄ N O ₄
2	Viral protein-40	C ₃₆₀ H ₂₅₃ N ₂₉ O ₃₄₁
3	Viral protein-50	C ₆₈ H ₈₄ N ₉ O ₆₁
4	Viral protein-35	C ₁₁₉₂ H ₅₆₀ N ₇₀ O ₁₁₆₈
5	Glycoprotein-24	C ₉₅₇₄₈ H ₁₀₁₆₄ N ₁₆₄₅ O ₁₀₆₀₈₈

For Carbon

S No	Atoms of Carbon	Probable drugs with anti-Ebola effects
1	C ₅	Allopurinol, Orotic Acid
2	C ₆₈	Lifastuzumab Vedotin, agavasaponin

For Hydrogen

S No	Atoms of Hydrogen	Probable drugs with anti-Ebola effects
1	H ₁₄	Naproxen
2	H ₈₄	Goserelin, Leuprolide Actinomycin X2

For Nitrogen

S No	Atoms of Nitrogen	Probable drugs with anti-Ebola effects
1	N ₉	Vancomycin

For Oxygen

S No	Atoms of Hydrogen	Probable drugs with anti-Ebola effects
1	O ₄	Aspirin, Viamin C, Orlistat

Existing drugs for Ebola virus infection treatment-

S No	Proven anti-Ebola Drug	No of atoms of Carbon/Target in Kda	No of atoms of Hydrogen/Target in Kda	No of atoms of Nitrogen/Target in Kda	No of atoms of Oxygen/Target in Kda
1	Ansuvimab	C ₆₃₆₈ /30 Kda	H ₉₉₂₄ /24 Kda	N ₁₇₂₄ /24Kda	O ₁₉₉₄ /33Kda
2	Altovimab	C ₆₄₄₈ /30Kda	H ₉₉₅₄ /24 Kda	N ₁₇₂₆ /24Kda	O ₂₀₀₂ /33Kda
3	Odesivimab	C ₆₅₀₆ /30Kda	H ₁₀₀₂₄ /24Kda	N ₁₇₂₀ /24Kda	O ₂₀₃₀ /33Kda

DISCUSSION

In the above observations, it is seen that there are many drugs with probable and proven anti-Ebola effects calculated using the same formula [1]. Drugs with more than one (1) matching number of elemental atoms will have better effect than drugs with matching number of only single elemental atoms. More studies need to be conducted for that. There are also many other monoclonal antibodies “locking” on to 24 Kda immune targets (Table-3) [1]. They too need to be studied for their anti-Ebola virus effects.

CONCLUSION

It is seen there are more drugs/chemicals/Monoclonal antibodies which can be repurposed for anti- Ebola treatments bearing the identical number of elemental atoms. Drugs with more than one (1) matching number of elemental atoms can have a stronger anti-Ebola effect than one without. More studies need to be conducted in that direction.

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