Summary

Therefore, the present invention, as defined in the claims attached, provides for new biomarkers (i.e. a new biomarker set) suitable for assessing HIV infection, particularly at an early stage of disease. Moreover, the present disclosure also describes a method for assessing HIV in a mammalian subject, as well as a kit adapted to carry out the method.

In a first example, the disclosure is directed to the use of a combination of metabolites contained in a blood sample, comprising at least one acylcarnitine (AC) and at least one sphingomyelin (SM) as a biomarker set for screening and/or diagnosing HIV.

In a further example, the disclosure is directed to the use of a combination of metabolites contained in a blood sample, comprising at least one phosphatidylcholine comprising at least one acyl-alkyl group in the molecule (PC ae), and at least two amino acids as a biomarker set for prediction of immunologic response of a mammalian subject to antiretroviral therapy and/or prognosis of HIV disease progression.

In a further example, the disclosure is directed to the use of a combination of metabolites contained in a blood sample, comprising at least the ratio of total amount of arachidonic polyunsaturated etherlipids to total amount of monounsaturated fatty acid ether lipids and the ratio of total amount of monounsaturated fatty acid ether lipids to total amount of saturated fatty acids as a biomarker set for monitoring of HIV activity in a mammalian subject.

In a further example, the present disclosure describes a method for screening and/or diagnosing HIV in a mammalian subject, the method comprising measuring in a blood sample obtained from the subject the amount of at least one acylcarnitine (AC) and at least one sphingomyelin (SM).

In a further example, the present disclosure describes a method for prediction of immunologic response of a mammalian subject to antiretroviral therapy and/or prognosis of disease progression, the method comprising measuring in a blood sample

obtained from the subject the amount of at least one phosphatidylcholine with at least one acyl-alkyl group in the molecule (PC ae) and at least two amino acids.

In a further example, the present disclosure describes a method for monitoring of HIV activity in a mammalian subject, the method comprising measuring in a blood sample obtained from the subject at least the ratio of total amount of arachidonic polyunsaturated etherlipids to total amount of monounsaturated fatty acid ether lipids and the ratio of total amount of monounsaturated fatty acid ether lipids to total amount of saturated fatty acids.

In particular, the disclosure comprises the following examples.

[1] Use of a combination of metabolites contained in a blood sample, comprising at least one acylcarnitine (AC) and at least one sphingomyelin (SM) as a biomarker set for screening and/or diagnosing HIV infection.

[2] Use of a combination of metabolites contained in a blood sample, comprising at least one phosphatidylcholine comprising at least one acyl-alkyl group in the molecule (PC ae), and at least two amino acids as a biomarker set for prediction of immunologic response of a mammalian subject to antiretroviral therapy and/or prognosis of HIV disease progression.

[3] Use of a combination of metabolites contained in a blood sample, comprising at least the ratio of total amount of arachidonic polyunsaturated etherlipids (PUFA ae) to total amount of monounsaturated fatty acid ether lipids (MUFA ae) and the ratio of total amount of monounsaturated fatty acid ether lipids (MUFA ae) to total amount of saturated fatty acids (SFA) as a biomarker set for monitoring of HIV disease activity in a mammalian subject.

[4] A method for screening and/or diagnosing HIV infection in a mammalian subject, the method comprising measuring in a blood sample obtained from the subject the amount of at least one acylcarnitine (AC) and at least one sphingomyelin (SM).

[5] The method of [4], wherein the at least one acylcarnitine is selected from those included in Table 2 of the specification and/or the at least one sphingomyelin is selected from those included in Table 4 of the specification, respectively.