

INDIVIDUAL (ClientID, Bdate, Sex, Pnumber, Street, State, City, Zip, GenomeID)

GenomeID is FK

Individual table is already in 3NF. Each attribute is functionally dependent on ClientID.

TESTDT (TestDT, ClientID)

TestDT and ClientID are the primary keys so it is in 3NF.

ETHNICITY (Ethnicity, ClientID)

Both are primary keys and in 3NF

OCCUPATION (Occupation, ClientID)

Occupation and ClientID are the primary keys so it is in 3NF.

GENOME (GenomeID, Accuracy)

GenomeID is the primary key.

FD: GenomeID → Accuracy

Already in 3NF

MARKERS (MarkerID, Position, Type, GenomeID)

GenomeID is FK

FD: MarkerID → Position, Type

Already in 3NF

GENE (GeneID, Genotype, Phenotype, MarkerID)

MarkerID is FK

FD: GeneID → Genotype, Phenotype

Already in 3NF

CONTAINS (AlterationID, GeneID)

AlterationID and GeneID are primary keys.

Already in 3NF.

ALTERATION (AlterationID)

AlterationID is primary key. There are no attributes functionally dependent on the primary key.

Already in 3NF

EPIGENETICS (EpigeneticID, Expression, Type, AlterationID)

AlterationID is FK

FD: EpigeneticID, AlterationID → Type, Expression

Already in 3NF

MUTATION (Change, MutationID, Type, Original, AlterationID, CodonID)

CodonID is foreign key.

FD: {MutationID, AlterationID} → Original, Type, Change

Already in 3NF

CODON (CodonID, Original, NewCodon, AminoAcid)
FD: CodonID → Original, NewCodon, AminoAcid
Already in 3NF