GENECHRON

From Research
to Advanced Health Care Diagnostic

About us

Genechron Ltd is a biotech company operating in the field of medical diagnostics.

Genechron offers molecular **genetic services** on genes involved in susceptibility to **cancer development**, in response to drug therapies and in the onset of **inherited disorders** or metabolic abnormalities.
In addition, it performs qualitative and quantitative analysis of microorganisms or viral agents.
A unique feature of Genechron is the ability to provide specialized scientific and diagnostic support to healthcare facilities and research institutions throughout the world.

Genechron was born as an innovative start-up in 2016, spun out from the biotechnology technologies of the Ylichron company, with the aim of further developing the research lines and the offer of services in the clinical field.

As such, as either part of Ylichron, or via the new spin out company, Genechron, out team has been offering **advanced genomics services** since 2010, and activating a series of projects in collaboration with **research centres** and industrial partners to produce new specific services.

Genechron has **highly specialized personnel** working in the field of molecular biology and genetics for over 10 years, and uses a modern and advanced instrumental equipment.

The company employs a Scientific Advisory Board composed of prominent personalities from the world of Research and Medicine.

Our Story

2010

The Genechron laboratory was initially created within Ylichron Ltd, a spin-off company of **ENEA**. It started its activities in the context of a project of the **Bioscience District Banking** with the collaboration of ENEA and the Medical Genetics Unit of the "Gemelli Policlinico" hospital of Rome.

2013

The Genechron Laboratory acquires the exclusive license of a **patent** powered by a team of researchers at the University of Rome "La Sapienza", which identifies a group of **miRNAs** as biomarkers in the Duchenne muscular dystrophy.

2014

Industrialization and **validation in GLP** of the analysis method of the miRNAS present in the patent.

Marketing of the validated method.

2016

Since 2011, numerous **scientific papers** were published that confirm the scientific validity of the approach to miRNA analysis, as biomarkers of degenerative diseases of the muscular, skeletal and cardiac systems.

Genechron Ltd is established, and it acquires the Genechron laboratory from Ylichron Ltd.

Genechron Ltd obtains **investments** (from "Lazio Innova" corporation, an in house company of the Lazio Region, and a group of private investors) for the marketing of validated methods for the detection of miRNAs as biomarkers and for the development of **Genomics services for the Medical Diagnostics**.

2018

Genechron Ltd obtains the authorization from the Lazio Region for the exercise as a **Laboratory of Medical Genetics**.

Vision

The interaction between the **world of research** and **diagnostics** provides the impetus for Genechron's Research & Development activities and has prompted the company to focus its attention on the development and optimization of innovative diagnostic methods.

The long experience in the development and validation of methods aimed at the detection of early markers, has led Genechron to use its resources towards the development and marketing of **specific diagnostic services**.

The verification, through **non-invasive analyses**, of the state of health of our body represents an important step towards the possibility of diagnosing or **anticipating pathological situations**, whose treatment could be complex, if not addressed in proactive and preventative interventions, and thus un-necessarily burdensome for the Health System.

The use of **biological markers** as diagnostic elements fully responds to this early diagnostic and therapeutic approach, in rare and common diseases.

Genechron intends to offer its clients the analysis of specific markers through standardized diagnostic methods based on technologies that represent the gold standard in the clinical field.

Early diagnosis and **personalized therapies** permit the improvement of the quality of life at low costs, if compared with those necessary for an intervention in more advanced pathological situations.

Developed Projects

with Lazio Region

AICI : development of a method based on Next Generation Sequencing for the analysis of bacterial contaminants

K-ACP : development of a methodology for the study of epigenetics modifications (mutation) of several tumor suppressors for the support to diagnosis and prognosis of prostatic cancer

MiRNA : development of a method for the analysis of miRNA as biomarkers for ALS and SMA

with MiSE (Ministry of Economic Development)

Industria2015 : development of transcriptomics technologies for the analysis of tumoral pathologies

Research Activities

In collaboration with the Genomic Medicine Institute, Catholic University "Sacro Cuore" in Rome

Analysis and Validation of new biomarkers for the evaluation of infant epilepsy

Sponsor: Italian Association Wolf-Hirshhorn Syndrome (AISiWH)

Genetic Services

The analysis of nucleic acids (DNA and RNA) represents an **important step for the development of a diagnostic method of investigation**. Genechron offers advanced genetic services to support specialists in clinical practice and patient treatment.

Our Clients

Clinical centres, hospitals, laboratories and **specialists** who need genetic analysis for specific diseases (hereditary, oncological, cardiovascular).

Pharmaceutical companies or **sponsors** that require the validation of methods based on specific molecular markers to be used in preclinical or clinical studies.

Companies and other subjects that are carrying out the **last phase of preclinical research** and who wish to validate and industrialize their innovations.

Companies dedicated to the **development of nutraceutical supplements,** who want to be informed, through molecular analysis, on the impact that specific polymorphisms have on the metabolism of nutrients.

Service for laboratories

Genechron **optimizes assays** based on amplification or **sequencing** and uses CE-IVD kits to analyse specific targets. Genetic analysis services, obtainable through a wide range of molecular biology methodologies, can be **customized for customers** after a specific request.

Genechron has a line of **R & D activities** focused on the development of tests for the **analysis of molecular biomarkers** (miRNA) in various clinical fields (neuromuscular pathologies, liver disease and hepatotoxicity, cardiology and muscular diseases).
Tests can be developed according to good laboratory practices and can be made available in Dossier Regulators (FDA, EMEA) both for the Preclinical Phase and for the Clinical Phase of drug development.

Genechron offers **reliable and fast service lines** based on proven technologies in diagnostics and in clinical settings.

Workflow

The workflow of our activity includes:

- The verification of conformity of the material sent
- Application of the specific methodology of analysis
- Control of the quality of the data obtained
- Sending the medical report and / or the report with the results

Specialized branches

MOLECULAR ONCOLOGY

PHARMACOGENETICS

MOLECULAR GENETICS

NUTRIGENETICS

CARDIOVASCULAR DISEASES

MOLECULAR INFECTIOLOGY

PRENATAL GENETICS

MOLECULAR ONCOLOGY

Genechron Ltd offers molecular diagnostic services for the analysis of genes involved in the **susceptibility to tumor development.**

	method	sample
Ovarian and mammarian tumor		
BRCA1	SEQ	S-EDTA/DNA/TB
BRCA2	SEQ	S-EDTA/DNA/TB
BRCA 1/2	SEQ	S-EDTA/DNA/TB

	method	sample
Li-Fraumeni Syndrome		
TP53	SEQ	S-EDTA/DNA

	method	sample
Hereditary nonpolyposis colorectal cancer (HNPCC) - Sindrome di Lynch		
MSH2	SEQ	S-EDTA/DNA
MLH1	SEQ	S-EDTA/DNA
MLH1/MSH2	SEQ	S-EDTA/DNA

	method	sample
Medullary thyroid carcinoma*		
RET	SEQ	S-EDTA

	method	sample
Family and / or multiple melanoma *		
CDKN2A	SEQ	S-EDTA

	method	sample
JAK2 (mutation V617F)	SEQ	S-EDTA

PHARMACOGENETICS

Study of the genetic variants that influence the response to pharmacological treatments.

	method	sample
BRAF single mutation codon 600	SEQ	BP
EGFR (exons 18, 19, 20, 21)	SEQ	BP
K-Ras (codons 12, 13 e 61)	SEQ	BP
N-Ras (codons 12, 13 e 61)	SEQ	BP
TP53	SEQ	S-EDTA

MOLECULAR GENETICS

Genetic diseased diagnostic.

	method	sample
Beta thalassemia		
HBB (whole gene)	SEQ	S-EDTA/DNA
Congenital hearing loss		
GJB2 (connexin 26)	SEQ	S-EDTA/DNA
GJB6 (connexin 30)	SEQ	S-EDTA/DNA
Cystic fibrosis		
CFTR 33 mutations +PoliT/Poli GT	SEQ	S-EDTA
CFTR 65 mutations	SEQ	S-EDTA
CTFR whole gene	SEQ	S-EDTA
Achondroplasia e Ipochondroplasia*		
FGFR3	SEQ	S-EDTA
Chromosome Y microdeletion	SEQ	S-EDTA
Fragile X (FRAXA)*	SEQ	S-EDTA
Spinal muscular atrophy - SMA (SMN1)*	SEQ	S-EDTA
Hemochromatosi		
Codons 63, 65 e 282	SEQ	S-EDTA
Muscolar dystrophy DMD/DMB*		
Main deletions	SEQ	S-EDTA
MLPA test	SEQ	S-EDTA

Analysis of the single genetic mutation — *Analysis on request*

NUTRIGENETICS

Analysis of genetic polymorphisms that influence nutrient metabolism

Intolleranze alimentari

	method	sample
Lactose intolerance *LCT* *(C-13910T,A-22018G)*	SEQ	S-EDTA/TB
Celiac disease*	SEQ	S-EDTA/DNA
Dietary fructose intolerance* *ALDOB* *(del4E4,A150P,* *A175D, N335K)**	SEQ	S-EDTA/TB
Caffeine sensitivity* *CYP1A2 (*1F*1A)*	SEQ	S-EDTA/TB
Sulfite sensitivity* *SUOX (Q364X, S370S,* *S370Y, Cod.381del TAGA)* *CBS (C699T,T1080C)*	SEQ	S-EDTA/TB
Nickel sensitivity* *FLG (2282del4)* *TNFa (-308G/A)*	SEQ	S-EDTA/TB
Alcohol sensitivity* *ALDH2 (E504K),* *ADH2 (H48R),* *ADH1C (I350V)*	SEQ	S-EDTA/TB

NUTRIGENETICS

Analysis of genetic polymorphisms that influence nutrient metabolism

Health and Wellness

	method	sample
Homocysteine metabolism*		
CBS (C699T,T1080C) *MTHFR (C677T,A1298C)* *MTR (A2756G)* *MTRR (A66G)* *TCN2 (776C/G)*	SEQ	S-EDTA/TB

	method	sample
Genetic predisposition to weight gain and obesity*		
SLC6A4/5HTTPLR (Ins/Del), ADRA2B (Ins/Del cod.299), APOA2 (-265 C-T), APOA5 (-1131T>C), FTO (T-A, C-A), NPY (L7P), PPARG (P12A), VEGF (c.-1507 C-G) SLC6A4/5HTTPLR (Ins/Del), ADIPOq (-11391 G/A), ADRB1 (G389R), ADRB2 (G16R), ADRB3 (W64R), FTO (C-T,T-C,T-G), GHSR (G477A), Leptin (-2548 G-A), MC4R (g.60183864T>C)	SEQ	S-EDTA/TB

Sport

	method	sample
Athletic performance*		
*ACE (Ins/Del), ACTN3 (R577X), LTC (-13910 T-C, G/A -22018), CYP1A2 (*1F*1A), NOS3 (-786 T/C), VEGF (G-634C)*	SEQ	S-EDTA/TB

	method	sample
Bone metabolism and osteoporosis*		
VDR (FokI, BsmI,TaqI), COL1A1 (intron 1 2046 G-T), CTR (Pro463Leu), ESR1 (PvuII, XbaI)	SEQ	S-EDTA/TB

CARDIOVASCULAR DISEASES

Analisi dei fattori genetici di rischio che presidpongono a patologie cardiovascolari

	method	sample
Hereditary thrombophilia		
ACE (ins/del sequence Alu)	SEQ	S-EDTA
AGT (M235T)	SEQ	S-EDTA
Factor II (G20210A)	qPCR	S-EDTA
Factor V of Cambridge (R306T)	SEQ	S-EDTA
Factor V of Leiden (G1691A/R506Q)	qPCR	S-EDTA
Factor V (H1299R)	qPCR	S-EDTA
Factor V (Y1702C)	qPCR	S-EDTA
Factor XIII (V34L)	SEQ	S-EDTA
MTHFR (1298 A/C)	qPCR	S-EDTA
MTHFR (C677T)	qPCR	S-EDTA
PAI-1 (4G/5G)	SEQ	S-EDTA

	method	sample
Thrombophilia 6 mutations panel		
Factor V (R506Q, H1299R,Y1702C), *Factor II (G20210A),* *MTHFR (A1298C, C677T)*	qPCR	S-EDTA

	method	sample
Thrombophilia 15 mutations panel*		
Factor V (Leiden, Y1702C, H1299R, Cambridge), *Factor II, b Fibrinogen,* *PAI-1, Factor XIII, HPA,* *ACE, APOE, APOB, AGT,* *MTHFR (A1298C, C677T)*	SEQ	S-EDTA

	method	sample
Cardiovascular risk factors*		
ACE (ins/del sequence Alu), ADIPOq (-11391 G/A), *ADRA2B (Ins/Del cod.299), ADRB1 (G389R),* *ADRB2 (G16R, Q27E), ADRB3 (W64R),* *AGT (M235T), AGTR1 (A1166C),* *APOB (R3500Q),* *APOE (Cys112Arg, Arg158Cys),* *APOA1 (-75 G>A), APOA2 (-265 C>T),* *APOC3 (C3175G), CETP (G279A, G1533A),* *E-selectin (Ser128Arg),* *EDN1 (Lys18Asn), FABP2 (A54T),* *Factor V (R506Q), FGB (C148T),* *FTO, GHSR (G477A), GJA4 (Pro319Ser),* *HMGCR (-911 C-A), Leptin (-2548 G>A),* *LIPC (-414 C-T), LPA, LPL (C1595G),* *MC4R, MMP3 (1171 5A/6A),* *MTNR1B (g.92975544 C>G),* *NOS3 (-786 T-C, Glu298Asp), NOX (G242T),* *NPY (L7P), PON1 (Gln192Arg), PPARA (L162V),* *PPARG (G482S), PPARGC1A (G482S), PROCR (Ser219Gly),* *SREBF2 (Gly595Ala), TCF7L2, VEGF (-1507 C-G, -2578 C-A)*	SEQ	S-EDTA

Note: The analysis of the single risk factor is performed on request

MOLECULAR INFECTIOLOGY

Molecular tests for the identification, quantitative analysis and genotyping of infectious agents

	method	sample
Chlamydia trachomatis	qPCR	LS/SP/TA/TC/TG/ TV/TU/UR-24/UR
Citomegalovirus (CMV)*	qPCR	S-EDTA/UR-24/ UR/TOF
Epstein-Barr virus (EBV)*	qPCR	S-EDTA/TOF
Micobacterium tubercolosis*	qPCR	ESP/UR-24/UR
Mycoplasma hominis	qPCR	TC/TA/TV/TU/ LS/UR-24/UR
Mycoplasma genitalium	qPCR	TC/TA/TV/TU/LS/ UR-24/UR
Neisseria gonorrhoeae	qPCR	LS/SP/TA/TC/TGL/ TOF/TU/TV/UR-24/UR
Papilloma screening (HPV) + typing 28 genotypes	qPCR	LS/TA/TBP/TC/TGL/TOF/ TU/TV/UR-24/UR
Ureaplasma urealyticum / parvum	qPCR	TC/TA/TV/ LS/UR-24/UR
Herpes Simplex 1-2*	qPCR	LS/SCL/TBP/TC/ TG/TGL/TV
Trichomonas vaginalis	qPCR	LS/TA/TC/ TV/UR-24/UR
Chlamydia/Neisseria Panel *(Chlamydia trachomatis, Neisseria gonorrhoeae)*	qPCR	LS/SP/TA/TC/TG/TGL/ TOF/TU/TV/UR-24/UR
Sexually transmitted diseases Panel *(Chlamydia trachomatis, Neisseria gonorrhoeae, Mycoplasma genitalium, Mycoplasma hominis, Ureaplasma urealyticum, Ureaplasma parvum, Trichomonas vaginalis)*	qPCR	LS/SP/TA/TBP/TC/ TG/TGL/TOF/TU/ TV/UR-24/UR

PRENATAL GENETICS

Tranquility is the only non-invasive test of fetal DNA with CE mark (CE-IVD) for trisomies 21, 18 and 13 that is also able to detect the aneuploidies and microdeletions of the sex chromosomes, and the sex of the unborn child. From the 10th week of gestation, the analysis carried out with Tranquility on the free DNA fragments circulating in the mother's blood generates results of absolute reliability.
High sensitivity> 99.9% High specificity> 99.9%

FREE FOLLOW-UP OF THE PATHOLOGICAL RESULTS In case of a positive result for aneuploidy, structural chromosomal anomaly or presence of genetic mutation, amniocentesis is free at the centers collaborating with Genechron.

At the time of the request, the dedicated collection kit will be provided.

	method	sample
Tranquility52S* *Screening of aneuploidies related to chromosomes 13, 18, 21 + sex determination*	SEQ	Peripheral blood
Tranquility* *Screening of the aneuploidies related to Chromosomes13, 18, 21 + analysis of desorders related to sex chromorsomes (Triple X Syndrome, Jacobs Syndrome, Klinefelter Syndrome and Turner Syndrome) and microdeletions syndromes (Angelman S., Cri-du-chat S., deletion 1p36 S., DiGeorge S., Prader-Willi S.) + sex determination*	SEQ	Peripheral blood
Tranquility eKaryo* *Screening of numerical anomalies related to all Chromosomes comprehensive of the analysis of desorders related to sex chromorsomes (Triple X Syndrome, Jacobs Syndrome, Klinefelter Syndrome and Turner Syndrome) + microdeletions syndromes (Angelman S., Cri-du-chat S., deletion 1p36 S., DiGeorge S., Prader-Willi S.) + sex determination*	SEQ	Peripheral blood

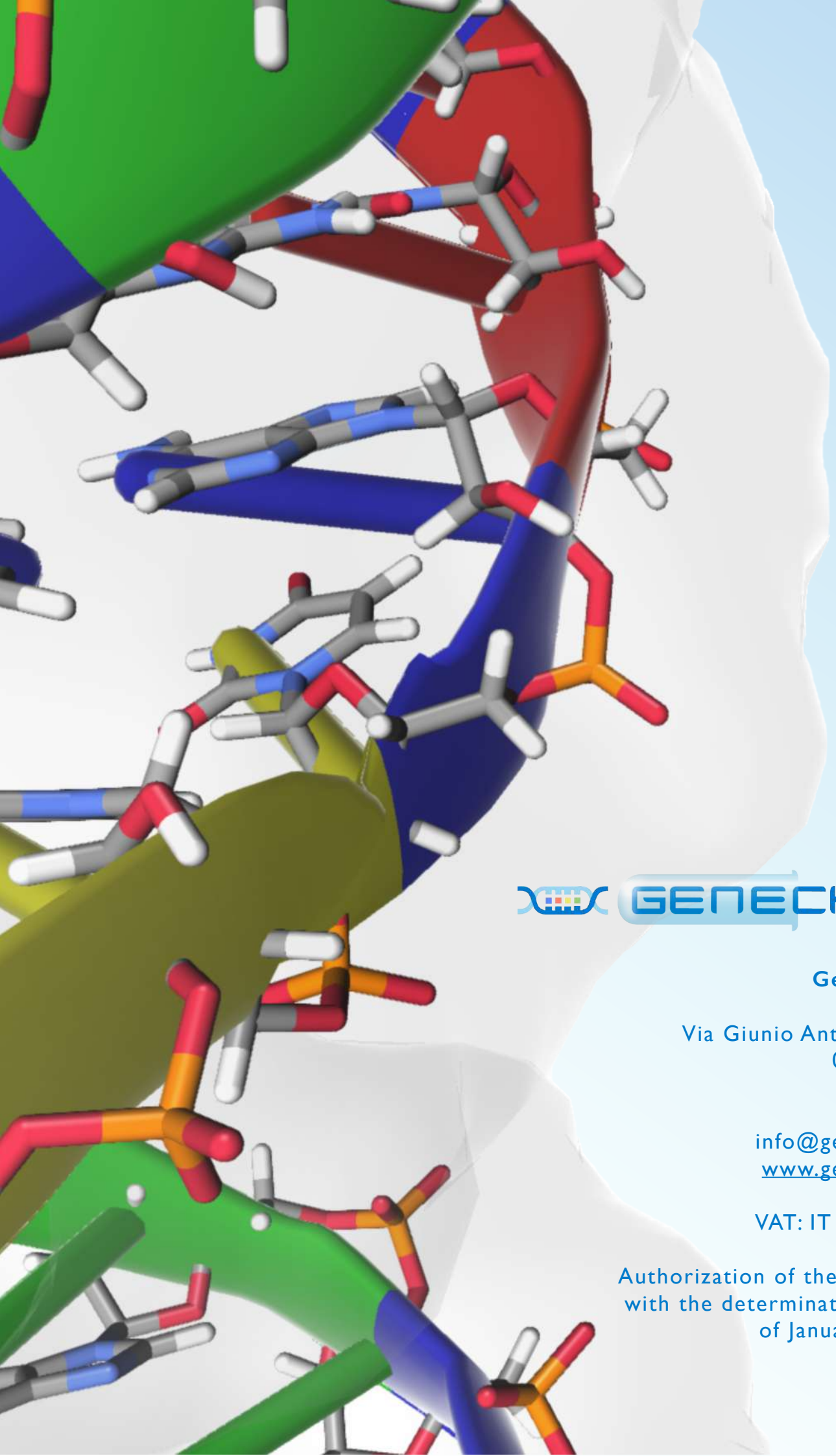
Legend

Legend of the biological samples:

SHORTEN NAME	TYPES OF BIOLOGICAL SAMPLE
BP	Biopsy
DNA	Dna
ESP	Sputum
LS	Seminal Liquid
SCL	Scrape from Injury
S-EDTA	Blood collection in EDTA
SP	Secret prostatic
TA	Anal swab
BT	Buccal swab
TBP	Balano-preputial buffer
TC	Cervical swab
TG	Conjunctival buffer
TGL	Glande swab
TOF	Gold-pharyngeal buffer
TU	Urethral swab
TV	Vaginal buffer
UR-24	Urine 24 hours
UR	Simple urine

Technical Notes Legend:

DNA: DNA extract sample
SEQ: Sanger sequencing or Next Generation Sequencing
qPCR: Real-time PCR
MLPA: Multiplex Ligation-dependent Probe Amplification
* Analysis can be performed in service



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