STREAMLINED AND EFFICIENT

COLLECTION, ORDERING, & RESULTS

AvaGen™—PROVIDING A RANGE OF CLINICAL APPLICATIONS

Keratoconus Risk (KC): Risk assessment of suspect or asymptomatic patients enables early sight-saving interventions and informed surgical decisions.

Corneal Cross-Linking: Inform confident, personalized, and early clinical decisions.

Refractive Surgery Optimization: Identify KC risk and/or corneal dystrophy presence informs LASIK, PRK, and surgical decisions.

Refractive Surgery Complications: Diagnose of corneal dystrophy when managing post-surgical corneal ectasia or assessing KC risk in undetected misses.

Specialty Contact Lens (SCL): Understand KC risk to evaluate non-performing SCL patients and inform SCL treatment decisions.

Young Myopes: Inform SCL and other therapeutic decisions in young myopes and others with progressive myopia.

Astigmatism: Inform management and therapeutic decisions for high, irregular, against-the-rule, and progressive astigmatism.

Families: Test family members of KC patients helps with early intervention.

AVELLINO DELIVERS COMPREHENSIVE TESTING MANAGEMENT AND SUPPORT.

1. **Collect DNA Sample:** A fast, easy, in-office buccal (cheek) swab is used to collect a sample.
2. **Ship:** Sample is sent to Avellino for analysis.
3. **Digital Report:** AvaGen™ reports are uploaded to HIPAA-compliant portal.
4. **Evaluation Support On Request:** Genetic counselors are available to provide understanding of the genetic test result to patients and implications to family members.

AvaGen™

THE GENETIC EYE TEST

Empowers eyecare professionals with personalized, objective, pre-symptomatic patient data, enabling confident early treatment decisions to protect and preserve vision for patients and families.

For information on the AvaGen™ genetic eye test, please visit:

Avellino.com/avagen

Know early.
Act personally.
Decide confidently.

AVELLINO

AvaGen™

THE GENETIC EYE TEST

GENES ARE **TALKING.**

WE'LL HELP YOU **LISTEN.**

KNOW THE RISK OF KERATOCONUS AND PRESENCE OF CORNEAL DYSTROPHIES.

AvaGen™ confidently empowers eyecare professionals with personalized patient genetic data to protect and preserve vision.

Know early.
Act personally.
Decide confidently.

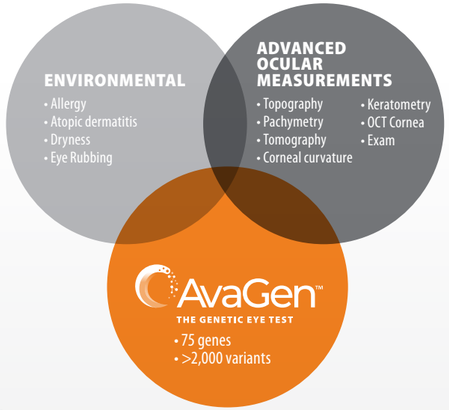
AVELLINO

THE AvaGen™ GENETIC EYE TEST

EMPOWERING A HIGHER LEVEL OF PERSONALIZED, TARGETED EYECARE

The groundbreaking AvaGen™ genetic eye test leverages powerful genetic information to provide eyecare professionals with an early and accurate understanding of keratoconus risk, and the presence of TGFBI gene related corneal dystrophies. By delivering these insights in both asymptomatic and suspected patients, AvaGen™ enables new opportunities for proactive sight-saving interventions and confident surgical decisions.

Assessing keratoconus is multi-factorial.
Until now, genetic data has been missing from the equation.



AvaGen™ is:

- **PERSONALIZED:** A fast and easy cheek swab sample is used to measure and assess keratoconus risk, and report the presence of TGFBI corneal dystrophies.
- **PRECISE:** Objective, quantitative genetic data reliably guides confident management and treatment decisions.
- **PROACTIVE:** Enables early, proactive assessment and actions not possible using reactive historical methods used after onset of symptoms.

POWERED BY

NEXT-GENERATION SEQUENCING

AvaGen™ ANALYZES:

- 75 keratoconus-related genes and over 2,000 variants to inform early and accurate management decisions.
- TGFBI gene and 70 TGFBI variants related to corneal dystrophies to provide a definitive diagnosis of subtypes of corneal dystrophies:
  - Epithelial Basement Membrane
  - Granular Type 1
  - Granular Type 2 (Avellino)
  - Lattice Type 1
  - Lattice Type IIIA
  - Reis-Bucklers
  - Schnyder
  - Theil-Behnke

AvaGen™
THE GENETIC EYE TEST

75 Keratoconus Related Genes

2k+ Keratoconus Related Gene Variants

1 TGFBI Gene

70 TGFBI Gene Variants

AVELLINO ALGORITHM

KERATOCONUS RISK

CORNEAL DYSTROPHY PRESENCE

EASY-TO-UNDERSTAND,

ACTIONABLE RESULTS

AvaGen™ TEST RESULTS ARE ORGANIZED INTO THREE CLEAR AND COMPLETE SECTIONS:

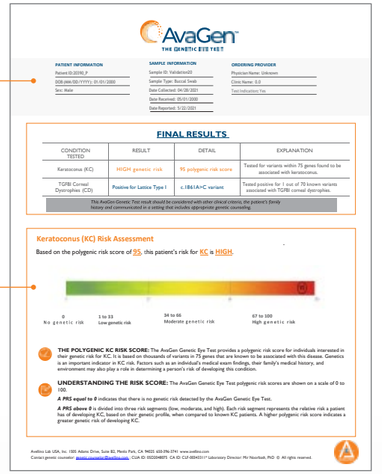
1 Patient and order information

2 Keratoconus risk assessment

- Polygenic risk score – low, medium, and high
- Relevant variant analysis
- Detailed variant interpretation

3 Corneal dystrophy detection

- Definitive diagnosis of subtypes of corneal dystrophies
- If corneal dystrophies confirmed, report includes:
  - Relevant variant analysis
  - Detailed variant interpretation


AvaGen
THE GENETIC EYE TEST

PATIENT INFORMATION
Patient ID: 20190_P
DOB (MM-DD-YYYY): 01-01-2000
Sex: Male

SAMPLE INFORMATION
Sample ID: Validation20
Sample Type: Buccal Swab
Date Collected: 04-28-2021
Date Received: 05-01-2020
Date Reported: 5-22-2021

ORDERING PROVIDER
Physician Name: Unknown
Clinic Name: ILO
Test Indications: Yes

FINAL RESULTS

CONDITION TESTED	RESULT	DETAIL	EXPLANATION
Keratoconus (KC)	HIGH genetic risk	95 polygenic risk score	Tested for variants within 75 genes found to be associated with keratoconus.
TGFBI Corneal Dystrophies (CD)	Positive for Lattice Type I	c.1861A>C variant	Tested positive for 1 out of 70 known variants associated with TGFBI corneal dystrophies.

This AvaGen Genetic Test result should be considered with other clinical criteria, the patient's family history and communicated in a setting that includes appropriate genetic counseling.

Keratoconus (KC) Risk Assessment

Based on the polygenic risk score of 95, this patient's risk for KC is HIGH.

0 No genetic risk
1 to 33 Low genetic risk
34 to 66 Moderate genetic risk
67 to 100 High genetic risk

THE POLYGENIC KC RISK SCORE: The AvaGen Genetic Eye Test provides a polygenic risk score for individuals interested in their genetic risk for KC. It is based on thousands of variants in 75 genes that are known to be associated with this disease. Genetics is an important indicator in KC risk. Factors such as an individual's medical exam findings, their family's medical history, and environment may also play a role in determining a person's risk of developing this condition.

UNDERSTANDING THE RISK SCORE: The AvaGen Genetic Eye Test polygenic risk scores are shown on a scale of 0 to 100.

A PRS equal to 0 indicates that there is no genetic risk detected by the AvaGen Genetic Eye Test.

A PRS above 0 is divided into three risk segments (low, moderate, and high). Each risk segment represents the relative risk a patient has of developing KC, based on their genetic profile, when compared to known KC patients. A higher polygenic risk score indicates a greater genetic risk of developing KC.

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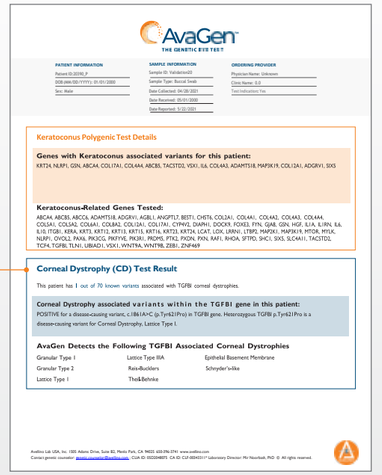
Contact genetic counselor: genetic.counselor@avalifesci.com CLIA ID: 05D2094805 CA ID: CLF-00043117 Laboratory Director: Mo Nourbakh, PhD © All rights reserved.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Keratoconus Polygenic Test Details

Genes with Keratoconus associated variants for this patient:
KRT24, NLRP1, GSN, ABCA4, COL17A1, COL4A4, ABCB5, TACSTD2, VSX1, ILA, COL4A3, ADAMTS18, MAP3K19, COL13A1, ADGRV1, SIX5

Keratoconus-Related Genes Tested:
ABCA4, ABCB5, ABCC6, ADAMTS18, ADGRV1, AGBL1, ANGPTL7, B3GTT1, CHST6, COL13A1, COL4A1, COL4A2, COL4A3, COL4A4, COL5A1, COL5A2, COL6A1, COL6A2, COL12A1, COL17A1, CYP4V2, DIAPH1, DOCK9, FOXO3, FTH1, GJA8, GSN, HGF, ILIA, IL1RN, IL6, IL10, ITGB1, KERA, KRT3, KRT12, KRT13, KRT15, KRT16, KRT22, KRT24, LCAT, LOX, LRRN1, LTBP2, MAP2K1, MAP3K19, MTOR, MYLK, NLRP1, OVOL2, PAX6, PIKFYVE, PIK3R1, PRDM5, PTK2, PXDN, RAP1, RHOA, SFTPD, SHC1, SIX5, SLC4A11, TACSTD2, TCF4, TGFBI, TLN1, UBIAD1, VSX1, WNT9A, WNT9B, ZEB1, ZNF469

Corneal Dystrophy (CD) Test Result

This patient has 1 out of 70 known variants associated with TGFBI corneal dystrophies.

Corneal Dystrophy associated variants within the TGFBI gene in this patient:
POSITIVE for a disease-causing variant, c.1861A>C (p.Tyr621Pro) in TGFBI gene. Heterozygous TGFBI p.Tyr621Pro is a disease-causing variant for Corneal Dystrophy, Lattice Type I.

AvaGen Detects the Following TGFBI Associated Corneal Dystrophies

Granular Type I
Granular Type 2
Lattice Type I
Lattice Type IIIA
Reis-Bucklers
Theil-Behnke
Epithelial Basement Membrane
Schnyder's-like

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Contact genetic counselor: genetic.counselor@avalifesci.com CLIA ID: 05D2094805 CA ID: CLF-00043117 Laboratory Director: Mo Nourbakh, PhD © All rights reserved.