Test Definition: SRYF

Sex-Determining Region Y, Yp11.3 Deletion, FISH

Overview

Useful For

Detecting the deletion or addition of the *SRY* gene in conjunction with conventional chromosome studies

Reflex Tests

Test Id	Reporting Name	Available Separately	Always Performed
_I099	Interphases, 25-99	No, (Bill Only)	No
_I300	Interphases, >=100	No, (Bill Only)	No
_IL25	Interphases, <25	No, (Bill Only)	No
_M30	Metaphases, >=10	No, (Bill Only)	No
_ML10	Metaphases, 1-9	No, (Bill Only)	No
_PADD	Probe, +1	No, (Bill Only)	No
_PB02	Probe, +2	No, (Bill Only)	No
_PB03	Probe, +3	No, (Bill Only)	No
_PB1	Probe Set, 1st	No, (Bill Only)	No

Genetics Test Information

This test is appropriate to aid in detecting the presence or absence of the *SRY* gene in patients with either a 46,XX karyotype and phenotypically normal male external genitalia or a 46,XY karyotype and phenotypically normal female external genitalia. Testing must be ordered in conjunction with conventional chromosome studies (CHRCB / Chromosome Analysis, Congenital Disorders, Blood; or CHRAF / Chromosome Analysis, Amniotic Fluid).

Testing Algorithm

This test includes a charge for the probe application, analysis, and professional interpretation of results for one probe set (2 individual fluorescence in situ hybridization probes). Analysis charges will be incurred based on the number of cells analyzed per probe set. If no cells are available for analysis, no analysis charges will be incurred. Additional charges will be incurred for application of all reflex probes performed.

Appropriate ancillary probes may be performed at consultant discretion to render comprehensive assessment. Any additional probes will have the results included within the final report and will be performed at an additional charge.

Special Instructions

- Final Disposition of Fetal/Stillborn Remains
- Informed Consent for Genetic Testing
- Informed Consent for Genetic Testing (Spanish)

Method Name

Fluorescence In Situ Hybridization (FISH)

NY State Available

Yes

Specimen

Specimen Type
Varies

Ordering Guidance
This test does not detect other chromosomal or structural anomalies and is intended to be ordered in conjunction with chromosome analysis.

For detection of unbalanced translocations, deletions, or duplications, chromosomal microarray may be the more appropriate test; order CMACB / Chromosomal Microarray, Congenital, Blood; or CMAP / Chromosomal Microarray, Prenatal, Amniotic Fluid/Chorionic Villus Sampling.

Additional Testing Requirements
Normal fluorescence in situ hybridization (FISH) results will not exclude the majority of cytogenetically detectable abnormalities. As FISH testing is not a substitute for complete cytogenetic analysis, additional cytogenetic testing should be performed in conjunction with this test; order CHRCB / Chromosome Analysis, Congenital Disorders, Blood.

Shipping Instructions
Advise Express Mail or equivalent if not on courier service.

Necessary Information
A reason for testing must be provided. The laboratory will not reject testing if this information is not provided however an applicable indication for testing may be entered by Mayo Clinic Laboratories. Appropriate testing and interpretation may be compromised or delayed.

Specimen Required
Submit only 1 of the following specimens:

Specimen Type: Amniotic fluid
Container/Tube: Amniotic fluid container
Specimen Volume: 20 to 25 mL
Collection Instructions:
1. Optimal timing for specimen collection is during 14 to 18 weeks of gestation, but specimens collected at other weeks of gestation are also accepted. Provide gestational age at the time of amniocentesis.
2. Discard the first 2 mL of amniotic fluid.
3. If ordering with CMAP / Chromosomal Microarray, Prenatal, Amniotic Fluid/Chorionic Villus Sampling, submit a minimum of 12 mL.
4. If ordering with CHRAF / Chromosome Analysis, Amniotic Fluid, submit a minimum of 12 mL.
5. If ordering with both CMAP and CHRAF, submit a minimum of 26 mL.

Additional Information:
1. Unavoidably, about 1% to 2% of mailed-in specimens are not viable.
2. Bloody specimens are undesirable.
3. If the specimen does not grow in culture, you will be notified within 7 days of receipt.
4. Specimen cannot be frozen.

Specimen Type: Autopsy
Supplies: Hank's Solution (T132)
Container/Tube: Sterile container with sterile Hank's balanced salt solution, Ringer's solution, or normal saline
Specimen Volume: 4 mm diameter
Collection Instructions:
1. Wash biopsy site with an antiseptic soap.
2. Thoroughly rinse area with sterile water.
3. Do not use alcohol or iodine preparations.
4. Biopsy specimens are best taken by punch biopsy to include full thickness of dermis.

Specimen Type: Whole blood
Container/Tube:
Preferred: Green top (sodium heparin)
Acceptable: Lavender top (EDTA) or yellow top (ACD)
Specimen Volume: 4 mL
Collection Instructions
1. Invert several times to mix blood.
2. Send whole blood specimen in original tube. **Do not aliquot**.
3. Other anticoagulants are not recommended and are harmful to the viability of the cells.
4. Cord blood is acceptable
Additional Information:
1. If the specimen does not grow in culture, you will be notified within 7 days of receipt.
2. Specimen cannot be frozen.

Specimen Type: Chorionic villus
Supplies: CVS Media (RPMI) and Small Dish (T095)
Container/Tube: 15-mL tube containing 15 mL of transport media
Specimen Volume: 20 to 25 mg
Collection Instructions:
1. Collect specimen by the transabdominal or transcervical method.
2. Transfer chorionic villi to a Petri dish containing transport medium.
3. Using a stereomicroscope and sterile forceps, assess the quality and quantity of the villi and remove any blood clots and maternal decidua.

Specimen Type: Fixed cell pellet
Container/Tube: Sterile container with a 3:1 fixative (methanol:glacial acetic acid)
Specimen Volume: Entire specimen

Specimen Type: Products of conception or stillbirth
Supplies: Hank's Solution (T132)
Container/Tube: Sterile container with sterile Hank's balanced salt solution, Ringer's solution, or normal saline
Specimen Volume: 1 cm(3) of placenta (including 20-mg of chorionic villi) **and** a 1-cm(3) biopsy specimen of muscle/fascia from the thigh
Collection Instructions: If a fetus cannot be specifically identified, collect villus material or tissue that appears to be of fetal origin.
Additional Information: Do not send entire fetus.

Specimen Type: Skin biopsy
Supplies: Hank's Solution (T132)
Container/Tube: Sterile container with sterile Hank's balanced salt solution, Ringer's solution, or normal saline
Specimen Volume: 4 mm diameter
Collection Instructions:
1. Wash biopsy site with an antiseptic soap.
2. Thoroughly rinse area with sterile water.
3. **Do not** use alcohol or iodine preparations.
4. A local anesthetic may be used.
5. Biopsy specimens are best taken by punch biopsy to include full thickness of dermis.

Forms

1. **New York Clients-Informed consent is required.** Document on the request form or electronic order that a copy is on file. The following documents are available:
-Informed Consent for Genetic Testing (T576)
-Informed Consent for Genetic Testing-Spanish (T826)
2. Final Disposition of Fetal/Stillborn Remains (if fetal specimen is sent).

Specimen Minimum Volume

Amniotic fluid: 5 mL; Autopsy, skin biopsy: 4 mm; Whole blood: 2 mL; Chorionic villi: 5 mg; Fixed cell pellet: 1 pellet

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Varies	Refrigerated (preferred)		
	Ambient		

Clinical & Interpretive

Clinical Information

This test is appropriate for individuals with a 46,XX karyotype and male sex external genitalia, a 46,XY karyotype and female sex external genitalia, clinical features suggestive of 46,XX testicular disorder of sex development with normal

male sex external genitalia, and clinical features suggestive of 46,XY complete gonadal dysgenesis.

The *SRY* (sex-determining region on the Y chromosome) gene is required for normal embryonic wolffian (male sex) genital development, although numerous other genes are involved in completing the process of normal phenotypic male development. Some gene variants block the action of *SRY* in development. Thus, a 46,XY individual with an *SRY* deletion or variant will have a normal female phenotype, and a 46,XX individual with translocation of *SRY* to one X chromosome will have a normal male phenotype. Structural abnormalities of the Y chromosome result in a spectrum of abnormalities from primary infertility (regardless of sex) to various forms of ambiguous genitalia. *SRY*-negative 46,XX individuals often have ambiguous genitalia, whereas those who are positive for *SRY* usually have a normal male phenotype with azoospermia. *SRY*-negative 46,XY phenotypic females may have another genetic variant, such as a *SOX9* gene variant.

A combination of conventional chromosome studies (CHRCB / Chromosome Analysis, Congenital Disorders, Blood; or CHRAF / Chromosome Analysis, Amniotic Fluid) to detect Y chromosome abnormalities and rule out other chromosome abnormalities or translocations, and fluorescence in situ hybridization studies to detect cryptic translocations involving the *SRY* region that are not demonstrated by conventional chromosome studies are recommended.

Reference Values

An interpretive report will be provided.

Interpretation

Any phenotypic male individual with an *SRY* signal on a structurally normal Y chromosome is considered negative for a deletion in the region tested by this probe. Any patient with a fluorescence in situ hybridization (FISH) signal pattern indicating loss of the critical region will be reported as having a deletion of the regions tested by this probe. Any patient with a FISH signal on an X chromosome will be reported as having a cryptic X;Y translocation involving the critical region.

Cautions

This test is not approved by the US Food and Drug Administration, and it is best used as an adjunct with other established methods to a confirm *SRY* deletions/duplications, such as existing clinical history or physical evaluation.

This test is not designed to detect low-level mosaicism.

Chromosomal microarray (CMACB / Chromosomal Microarray, Congenital, Blood; or CMAP / Chromosomal Microarray, Prenatal, Amniotic Fluid/Chorionic Villus Sampling) may be the more appropriate test to detect unbalanced translocations, deletions, or duplications.

Interfering factors
-Cell lysis caused by forcing the blood quickly through the needle
-Use of an improper anticoagulant (sodium heparin is best) or improperly mixing the blood with the anticoagulant
-Excessive transport time
-Inadequate amount of specimen may not permit adequate analysis
-Improper packaging may result in broken, leaky, and contaminated specimen during transport
-Exposure of the specimen to temperature extremes (either freezing or >30 degrees C) may kill cells and interfere with attempts to culture cells
-In prenatal specimens, a bloody specimen may interfere with attempts to culture cells and contamination by maternal cells may cause interpretive problems

Clinical Reference

1. Mohnach l, Fechner PY, Keegan CE: Nonsyndromic disorders of testicular development overview. In: Adam MP, Feldman J, Mirzaa GM, et al, eds. GeneReviews (Internet). University of Washington, Seattle; 2008. Updated August 18, 2022. Accessed June 13, 2024. Available at www.ncbi.nlm.nih.gov/books/NBK1547

2. Emmanule CD, Vilain EJ: Nonsyndromic 46,XX Testicular disorder of sex development. In: Adam MP, Feldman J, Mirzaa GM, et al, eds. GeneReviews (Internet). University of Washington, Seattle; 2003. Updated May 26, 2022. Accessed June 13, 2024. Available at www.ncbi.nlm.nih.gov/books/NBK1416/

Performance

Method Description

This test is performed using a commercially available enumeration strategy probe set including *SRY* (Yp11.3) and X chromosome control probe. Ten metaphase cells are examined for the presence of *SRY*.(Unpublished Mayo method)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

7 to 10 days

Specimen Retention Time

Amniotic fluid (remaining supernatant/whole fluid aliquots): Discarded 14 days after report. Blood: 4 weeks. Products of conception (identifiable fetal tissue): Cremated quarterly after results reported. All other specimens: Discarded when results reported.

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees

- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification

This test was developed using an analyte specific reagent. Its performance characteristics were determined by Mayo

Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

88271x2, 88291-DNA probe, each (first probe set), Interpretation and report
88271x2-DNA probe, each; each additional probe set (if appropriate)
88271x1-DNA probe, each; coverage for sets containing 3 probes (if appropriate)
88271x2-DNA probe, each; coverage for sets containing 4 probes (if appropriate)
88271x3-DNA probe, each; coverage for sets containing 5 probes (if appropriate)
88273 w/modifier 52-Chromosomal in situ hybridization, less than 10 cells (if appropriate)
88273-Chromosomal in situ hybridization, 10-30 cells (if appropriate)
88274 w/modifier 52-Interphase in situ hybridization, <25 cells, each probe set (if appropriate)
88274-Interphase in situ hybridization, 25 to 99 cells, each probe set (if appropriate)
88275-Interphase in situ hybridization, 100 to 300 cells, each probe set (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
SRYF	SRY, Yp11.3, FISH	81748-6

Result ID	Test Result Name	Result LOINC® Value
52003	Result Summary	50397-9
52005	Interpretation	69965-2
54565	Result	62356-1
CG717	Reason for Referral	42349-1
CG718	Specimen	31208-2
52006	Source	31208-2
52007	Method	85069-3
52004	Additional Information	48767-8
52008	Released By	18771-6
53850	Disclaimer	62364-5