



Foundation Plant Services

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UCDAVIS

FPS DNA-BASED GRAPE VARIETAL IDENTIFICATION AND PROFILING SERVICES

Foundation Plant Services offers DNA-based grape varietal identification and profiling on a fee-for-service basis. The services make “DNA Fingerprinting” technology available to nursery managers, grape growers, wineries, breeders and other industry representatives. Grape varieties are identified by comparing the DNA profile of a grapevine sample to Foundation Plant Services’ Grape DNA Identification Reference Database. The database contains DNA profiles of over 1200 grape varieties from major grape growing regions around the world and includes wine grape, table grape, raisin and rootstock varieties. A second service provides the client with the unique DNA profile of the variety. Both domestic clients and clients from outside the U.S. may submit samples for analysis.

Results are typically ready in three to four weeks. An invoice will be sent with the results when testing is complete. Payment is due upon receipt of invoice.

Service 1: DNA Identification of Grape Varieties

This service determines or confirms the varietal identity of a particular grapevine. A sample from the vine in question is typed at eight microsatellite markers. The resulting DNA profile (the DNA Fingerprint) is compared with Foundation Plant Services’ Database of Grape Reference Profiles. Leaves are the standard sample, but other tissues including fruit, roots and dormant cuttings can also be fingerprinted. Sample collection materials and instructions are provided as part of the service.

Price: 1-5 samples \$300 per sample
6 or more samples \$225 per sample

(There is a \$40 per sample surcharge for all sample types other than leaves.)

Service 2: DNA Profiling of Grape Varieties

This service provides a unique DNA profile (DNA Fingerprint) of a grape variety. Two separate samples of a grape variety are typed at ten microsatellite markers. The use of ten DNA markers ensures to an extremely high degree of confidence that the profile is unique to the variety. The resulting profile is provided to the client.

Price: DNA Profiling \$1000 per sample

(Only leaf samples are accepted for the DNA Profiling Service.)

HOW TO SUBMIT SAMPLES FOR TESTING

Materials for submitting standard samples (dried leaves) are provided as part of the service. All other sample types require special arrangements. The DNA testing agreement form and detailed collection instructions are available on our web site.

- 1) Contact Jerry Dangl at the FPS Plant Identification Lab by phone or email. You will be asked for your contact information, which service you need, how many samples you'll be submitting and for some background regarding your testing issue.
- 2) Collect your samples according to the instructions, which will be provided with the sample collecting kits and are available on our web site.
- 3) Complete the Testing Agreement Form, including Attachment A. The form is on our web site, but we can send a hard copy with the sample collection kits, if you wish. You can return the form with your samples or by FAX.

Web Site: <http://fpms.ucdavis.edu/CustomServices.html>.

Phone: (530) 752-7540

FAX: (530) 752-2132

E-mail: gsdangl@ucdavis.edu.

Mail samples to:

(via US Postal Service)

Foundation Plant Services
Attn: Jerry Dangl
University of California
One Shields Ave.
Davis, CA 95616

(via UPS, FedEx or other courier)

Foundation Plant Services
Attn: Jerry Dangl
University of California
SW Corner Hopkins & Straloch Rds.
Davis, CA 95616

DISCLAIMER

Although DNA profiling is a very powerful and sensitive identification tool, it has limitations:

- 1) The university's reference database is extensive; however, it does not contain all known varieties. If there is no reference profile for the variety of the submitted sample, then the university cannot identify the sample. User will pay for work performed by the university regardless of whether or not sample can be identified.
- 2) The technology used for the university's standard service cannot distinguish variants within a variety. Profiles for such variants, referred to in the industry as "somatic mutants", "clones" or "bud-sports", will be identical, though the difference in the appearance of the plant and/or the fruit may be significant.
- 3) Numerical designations used to define microsatellite allele sizes may differ slightly between laboratories due to differences in methodology. Adjustments for inter-laboratory differences can be made by referencing common varieties that have the same alleles as the samples being analyzed.
- 4) Ambiguous genotypes at individual markers are occasionally observed. These ambiguities, a normal consequence of the methodology, can be resolved if the parents of the variety are also analyzed. Such ambiguities do not normally pose a problem in creating a profile unique to the tested variety, as the results for the other markers are usually unambiguous, and these alone can be expected to characterize the variety uniquely.