Sequence Variation Discovery Module for Aptean GenomeQuest

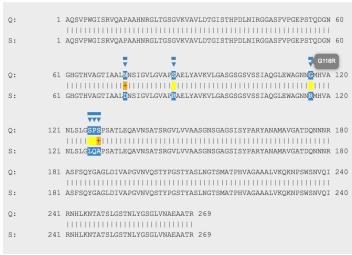## Powerful Features for Sequence Variation Search & Reporting

The GenomeQuest Sequence Variation Discovery Module extends GenomeQuest's industry-leading IP sequence search and analysis toolsuite with powerful sequence variation search and reporting features. The module makes variation search both more precise and more efficient by enabling searchers to rapidly screen a large set of results, find specific variants with pinpoint precision, and efficiently prepare a high-level overview of their entire result set.

Screen with Interactive Variation Filters

The Sequence Variation Discovery Module provides specialized Variation Filters that support both position-specific and residue-specific filtering in GenomeQuest. Variation Filters combine seamlessly with all other GenomeQuest filters and can be added and removed with a single click. Using the Variation Filters, you can:

- Identify sequences comprising any number of specific or broad variations – by position, region, or combination – or exact match.

- Designate one or multiple sites for specific variations, with one or multiple residues specified as replacements. Insertions and deletions are also identified.

- Retrieve point mutations or study a range containing multiple non-specific replacements by "locking" a specific subsequence while varying other regions.

- Display just the desired variations with user-configurable graphics.

- Create an exportable table of all variations found in a given query/subject pair.

GenomeQuest Alignment

Variation Filter applied to search results to display selected variations

Easily Visualize & Interact with Results

The Sequence Variation Discovery Module also gives you access to the Variation Landscape Report – a reporting tool that produces a high-level overview of your entire result set, listing all variations for each position with a heatmap-like view of the query sequence and a detailed, Excel-compatible, position-by-position table. With the Variation Landscape Report, you can:

- Easily apply the filter(s) of your choice and repeat the report preparation to see the various combinations with each set of filters. The report is created with a single click, so different combinations of variations can be applied and a landscape created in minutes, rather than days.

- Progressively build variant combinations and observe the effect on other positions by dynamically adding and removing variations. This capability not only streamlines IP search, but can also be used to accelerate the discovery process.

Variation Landscape [top]

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AQSVPWGISR VQAPAAHNRG LTGSGVKVAV LDTGISTHPD LNIRGGASFV
PGEPSTQDGN GHGTHVAGTI AALNNSIGVL GVAPSAELYA VKVLGASGSG
SVSSIAQGLE WAGNNGMHVA NLSLGSPSPS ATLEQAVNSA TSRGVLVVAA
SGNSGAGSIS YPARYANAMA VGATDQNNNR ASFSQYGAGL DIVAPGVNVQ
STYPGSTYAS LNGTSMATPH VAGAAALVKQ KNPSWSNVQI RNHLKNTATS
LGSTNLYGSG LVNAEAATR
```

Black	No variation discovered at that position
Green	One variation discovered at that position
Orange	2 to 10 variations discovered at that position
Red	Over 10 variations discovered at that position

Variation Landscape Summary Table [top]

Query position	Variation type	Description
3	Replacement	S3V(11), S3T(1)
8	Replacement	I8V(1)
18	Replacement	N18R(10)
22	Replacement	T22W(2)
24	Replacement	S24R(15)
28	Replacement	V28T(5)
39	Replacement	P39E(5)
42	Replacement	N42S(1)
70	Replacement	I70X(11)
74	Replacement	N74X(11), N74D(264)
76	Replacement	S76R(4), S76Q(7), S76P(2), S76T(6), S76N(60), S76X(11), S76W(5), S76V(4), S76Y(4), S76G(11), S76E(8), S76C(10), S76A(6), S76M(9), S76F(4), S76L(7), S76H(9), S76K(3), S76I(5)

Variation Landscape Report showing a heatmap-like view of the query sequence and table of all variations found for each position

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