Agilent SureSelect CD ONCOgènes CAPture Haemoclonality Panel

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"ONCOCAPLY, combined with adapted bioinformatics pipelines such as Vidjil, is a very powerful tool that improves and clearly refines the assessment of lymphoproliferative syndromes. This tool has also greatly simplified our workflow for the analysis of CLL."

Targeted Next-Generation Sequencing for Hematological Disease Research

Agilent Community Designs for next-generation sequencing (NGS) are targeted sequencing panels established in collaboration with subject matter experts in different research fields. These NGS designs are available as custom, made-to-order panels that provide you with robust and cost-effective sequencing results that focus only on your genes of interest.

The research interests of Dr. Yannick Le Bris and his team at the University of Nantes Hospital Center focus on the development of new molecular biomarkers that can be useful for the development of precision medicine research tools in hematology, with a focus on identifying and understanding B-cell malignancies, chronic myeloid malignancies, and immunotherapy.

The Agilent SureSelect CD ONCOgènes CAPture haemoclonality panel (ONCOCAPLY haem panel) offers a single capture-based NGS sequencing workflow for the simultaneous analysis of the rearranged variable regions of genes coding for TCR gamma and beta chains (TRG and TRB), immunoglobulin heavy and kappa light chains (IGH and IGK), and 22 commonly studied oncogenes associated with diagnostic, prognostic, or therapeutic interest.[1] The panel therefore enables detection of lymphoid clonality alongside genetic alterations in the oncogenes assayed.

The lab has used this ONCOCAPLY panel in the investigation of mature lymphoproliferative syndromes such as non-Hodgkin's B and T cell lymphomas and chronic lymphocytic leukemia (CLL).[2] ONCOCAPLY also allows the combined analysis of the mutational status of the variable region of the immunoglobulin heavy chain (IGHV) gene with the detection of potential variants and CNVs in the *TP53* gene, which may be significant in the management of CLL.[3]

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Advantages of SureSelect Workflow for Hematological Analysis

Le Bris et al. combined the ONCOCAPLY panel with Agilent SureSelect XT HS2 library preparation in order to investigate a potential high-throughput sequencing workflow with SureSelect benefits. Notably, low DNA input and a unified workflow for both FFPE and fresh-frozen tissues or cell-based research samples.

This innovative single-step assay also has advantages over the commonly used PCR- and Sanger sequencing-based approaches. These include avoidance of impaired PCR amplification caused by somatic hypermutations (SHMs) over the primer binding site, and capture probes unimpeded by SHMs.[2] A concordance study showed that when evaluated by both targeted sequencing and the PCR/Sanger approach, 100% of the samples (n=51) obtained similar mutational results. Further, unlike the PCR/Sanger approach, analysis of IGHV mutational status was successful in all 103 samples studied with this ONCOCAPLY panel workflow.

Table 1. Genes covered in the SureSelect CD ONCOgènes CAPture haemoclonality panel (does not cover all exons of all genes, please see .bed file for full information).

B2M	PLCG1
BRAF	PLCG2
BTK	ROHA
CARD11	SOCS1
CD28	STAT3
CXCR4	STAT5B
DNMT3A	STAT6
IDH2	TET2
JAK3	TNFAIP3
KRAS	TP53
MYD88	NRAS
IGH	TRG
IGK	TRB

Table 2. Ordering information for the Agilent SureSelect CD ONCOgènes CAPture haemoclonality panel. *Note: part numbers cover the capture probe libraries only. Library prep and target enrichment kits must be purchased separately.*

Product	Part Number
SureSelect CD ONCOCAPLY Haem panel 16	5282-0016
SureSelect CD ONCOCAPLY Haem panel 96	5282-0017
SureSelect CD ONCOCAPLY Haem panel 96A	5282-0018

References

1. Sujobert P, Le Bris Y, et al. The Need for a Consensus Next-generation Sequencing Panel for Mature Lymphoid Malignancies. *Hemasphere*. **2018**;*3*(1):e169. doi: 10.1097/HS9.0000000000000169. PMID: 31723808; PMCID: PMC6745936.
2. Le Bris Y, et al. Single Capture High Throughput Sequencing Assay for Combined V(D)J Clonality Analysis and Oncogene Mutations in the Diagnosis of T and B Lymphoid Malignancies. *Blood* **2021**, *138*(Supplement 1), 2404-2404. https://doi.org/10.1182/blood-2021-151083 https://doi.org/10.1182/blood-2021-151083.
3. Le Bris Y, et al. Reliable One-Step Assessment of IGHV Mutational Status and Gene Mutations in Chronic Lymphocytic Leukemia by Capture-Based High Throughput Sequencing. *bioRxiv* **2022**. https://doi.org/10.1101/2022.03.09.483581.

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Agilent has not performed verification and validation on these panels.

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This information is subject to change without notice.

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