

SureSelect CD Infectious Disease Pathogen NGS Panels

Innovation powered by you

“SureSelect target enrichment enables highly efficient whole pathogen genome sequencing without the need for prior culture or PCR. The robust and consistent performance of SureSelect is why we’ve been depending on it for over 10 years.”



Judith Breuer

Professor of Virology Co-director,
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The ability to perform whole genome sequencing of viruses and bacteria directly from clinical samples is important for understanding the genetics of host-pathogen interactions.

Due to the much smaller size of pathogen genomes, the proportion of host nucleic acid in an extract massively outweighs that of pathogen nucleic acid. To overcome this, the research group led by Professor Judith Breuer at University College London has pioneered the enrichment and sequencing of whole pathogen genomes directly from clinical research material using custom SureSelect NGS panels.¹⁻⁹

These custom designed SureSelect NGS panels targeting the genomes of pathogenic bacteria and viruses provide an effective way to capture nucleic acid material directly from various clinical research samples including blood, sera, plasma, stool, and nasopharyngeal aspirates. This obviates the need of prior enrichment of pathogen by culture or PCR. The SureSelect NGS panel designs created by Professor Breuer’s group are listed in the table below and are now available through the Agilent Community Design program. These panels are research tools to study pathogen genome sequences in the context of disease, antimicrobial resistance, treatment and vaccination.

These pathogen panels are compatible with the SureSelect XT, XT HS and XT Low Input protocols, with 1:10 dilution of the probe libraries along with other modifications recommended by Professor Breuer’s group. Please refer to the application note: “Utilization of Agilent SureSelect Target Enrichment for Whole Genome Sequencing of Viruses and Bacteria” (5994-0909EN) authored by Professor Breuer’s group for details prior to ordering these panels.¹

The Agilent Community Design program offers NGS panels designed by or in collaboration with experts in various research fields. These Community Design panels are produced upon your order and are ready to ship in as little as 2 weeks.

Table 1. The Agilent SureSelect Community Infectious Disease Pathogen NGS panels designed by the UCL group led by Professor Breuer.*

Part Number	Panel Name	Targeted Pathogen	Reference Sequences Used (Year of Design Creation)	Design Size Tier
RNA Viruses				
5191-6721	SureSelect XT Community Design FluA and FluB	Influenza Virus A and B	15500 complete genomes (2017)	1
5191-6726	SureSelect XT Community Design PanEnteroRhino	Enterovirus A - D and Rhinovirus	2679 complete genomes (2018)	2
5191-6716	SureSelect XT Community Design PanEnterovirus	Enterovirus	844 genomes (2013)	1
5191-6719	SureSelect XT Community Design PanHCV	Hepatitis C Virus (HCV)	2000 complete genomes, all genotypes (2017)	4
5191-6709	SureSelect XT Community Design PanHIV1	Human Immunodeficiency Virus 1 (HIV-1)	2635 complete genome (2017)	2
5191-6706	SureSelect XT Community Design PanHIV2	Human Immunodeficiency Virus 2 (HIV-2)	462 complete genomes (2017)	1
5191-6714	SureSelect XT Community Design PanNoro	Norovirus	987 sequences; 869 sequences >90% genome; shorter sequences for rarer genotypes (2015)	1
5191-6727	SureSelect XT Community Design PanParaflu	ParaInfluenza 1 - 3	326 Complete genomes (2017)	1
5191-6722	SureSelect XT Community Design PanRespiratoryViruses	Parainfluenza 1 - 3, Respiratory Syncytial Virus A and B, and Metapneumovirus	1300 complete genomes (2018)	1
5191-6725	SureSelect XT Community Design PanRSV	Respiratory Syncytial Virus A and B (RSV-A and RSV-B)	913 Complete Genomes of RSV A and RSV B (2017)	1
5191-6838	SureSelect CD Pan Human Coronavirus	Human coronavirus	813 complete genomes from GISAID (March 5th, 2020)	1
5282-0027	SureSelect XT HS CD Rotavirus	Rotavirus A	42883 complete segments of Rotavirus A (2020)	1
DNA Viruses				
5191-6707	SureSelect XT Community Design CMV	Human Cytomegalovirus (HCMV)	201 complete genomes (2013)	1
5191-6711	SureSelect XT Community Design PanHHV6	Human Herpes Virus 6A and B (HHV-6A and 6B)	8 complete genomes (2017)	1
5191-6713	SureSelect XT Community Design PanAdenovirus	Adenovirus	487 complete genomes (2018)	1
5191-6717	SureSelect XT Community Design PanEBV	Epstein-Barr Virus (EBV)	99 genomes (2015)	1
5191-6720	SureSelect XT Community Design PanHBV	Hepatitis B Virus (HBV)	7500 complete genomes (2017)	1
5191-6728	SureSelect XT Community Design PanHumanPolyomaviruses	Human Polyomaviruses	47 HPV genomes (1 per type - list of types included available) + 35 SV40 genomes + 440 JC genomes and 268 BK genomes (2013)	1
5282-0028	SureSelect XT HS CD Pan Respiratory v2 Parainfluenza 1 - 3	Respiratory Syncytial Virus A and B, and Metapneumovirus	1300 complete genomes (2022)	2
5282-0029	SureSelect XT HS CD VZV v2	Varicella Zoster Virus (VZV)	265 complete genomes (2020)	1
5282-0025	SureSelect XT HS CD Monkeypox (Fast Hyb)	Monkeypox	102 Genomes (2022)	2
5282-0026	SureSelect XT CD Monkeypox	Monkeypox	102 Genomes (2022)	1
Bacteria				
5191-6708	SureSelect XT Community Design Ctrachomatis	<i>Chlamydia trachomatis</i>	104 complete genomes, 38 plasmid (2017)	2
5191-6724	SureSelect XT Community Design Lpneumophila	<i>Legionella pneumophila</i>	84 complete genomes (2018)	5
5191-6710	SureSelect XT Community Design Mtuberculosis	<i>Mycobacterium tuberculosis</i>	275 Complete Genomes (2017)	4
5191-6723	SureSelect XT Community Design Mtuberculosis Light	<i>Mycobacterium tuberculosis</i> , selected targets	Target size - 160kb. List of target regions available (2018)	1
5191-6712	SureSelect XT Community Design Nmeningitidis	<i>Neisseria meningitidis</i>	77 whole genomes and 2898 draft genomes (2016)	2

*Agilent has not performed verification and validation on these panels.

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**Agilent has not performed verification and validation on these panels.
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