

GUIDE

# Proteomics Sample Randomization Guidelines



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## PROTEOMICS SAMPLE RANDOMIZATION GUIDELINES

## 1. Sample Submission Guidelines for Olink® Explore HT

The ideal way to submit samples for Olink Explore HT is in a FrameStar plate with 86 samples per plate. The samples should be randomized across all plates submitted for a project. Please leave wells G11, H11, A12, B12, C12, D12, E12, F12, G12, H12 empty as controls are added in these locations.

Please see below for a visual reference of the ideal way to submit one batch for Olink Explore HT processing, with the numbers 1-172 representing individual samples.

*Sample Plate 1:*

	1	2	3	4	5	6	7	8	9	10	11	12
A	1	9	17	25	33	41	49	57	65	73	81	
B	2	10	18	26	34	42	50	58	66	74	82	
C	3	11	19	27	35	43	51	59	67	75	83	
D	4	12	20	28	36	44	52	60	68	76	84	
E	5	13	21	29	37	45	53	61	69	77	85	
F	6	14	22	30	38	46	54	62	70	78	86	
G	7	15	23	31	39	47	55	63	71	79		
H	8	16	24	32	40	48	56	64	72	80		

*Sample Plate 2:*

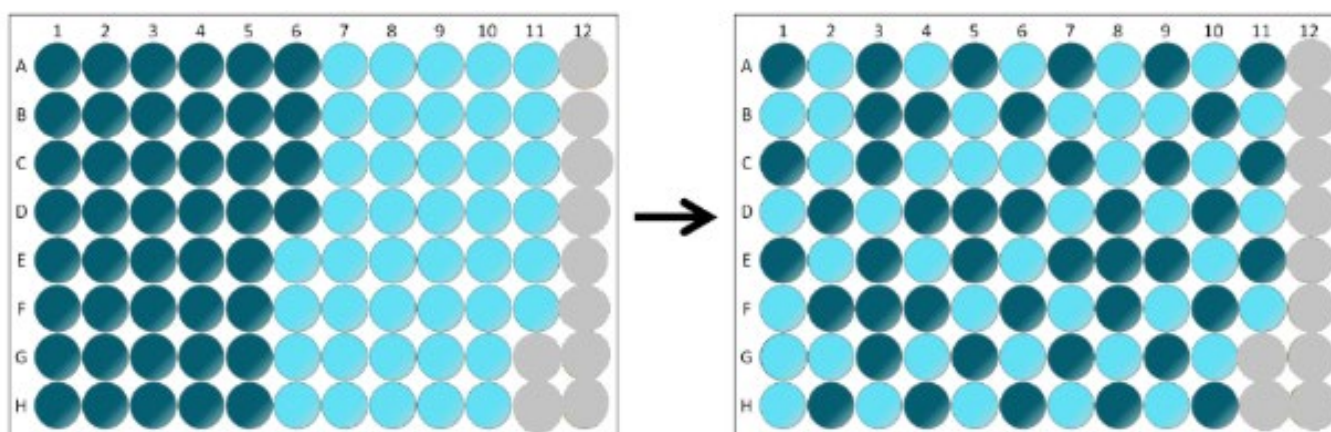
	1	2	3	4	5	6	7	8	9	10	11	12
A	87	95	103	111	119	127	135	143	151	159	167	
B	88	96	104	112	120	128	136	144	152	160	168	
C	89	97	105	113	121	129	137	145	153	161	169	
D	90	98	106	114	122	130	138	146	154	162	170	
E	91	99	107	115	123	131	139	147	155	163	171	
F	92	100	108	116	124	132	140	148	156	164	172	
G	93	101	109	117	125	133	141	149	157	165		
H	94	102	110	118	126	134	142	150	158	166		

Sample Type	Remarks	Quantity	Shipping Method
Human serum/plasma	Required	>20 µl	Dry ice
	Recommended	50 µl	

## PROTEOMICS SAMPLE RANDOMIZATION GUIDELINES

## 2. Instructions for Randomization

Samples should be well randomized to avoid bias based on plate or location within a batch. If randomization is not performed, then a biological variation may be missed or misidentified as a technical variation. Clients who randomize may do so under their own method, but two options for different methods are displayed below. Samples that are processed on more than one batch should be randomized between all batches; however, it is recommended that samples from the same patient are processed on the same plate. Below is an example of a plate that has been randomized for Olink Explore HT.



### Method 1:

Randomize using a Plate Randomizer tool with coding according to instructions here: [https://cran.r-project.org/web/packages/OlinkAnalyze/vignettes/plate\\_randomizer.html](https://cran.r-project.org/web/packages/OlinkAnalyze/vignettes/plate_randomizer.html)

### Method 2:

Randomize all samples in Microsoft Excel.

- Copy a list of all samples in Excel in one column with a header. If multiple sample identifiers are to be used, then arrange in a table with multiple columns.

In an adjacent column, to the right of the data, paste the following formula: `=RAND()`

	A	B	C	D	E
1	Sample	Subject ID	Random Number		
2	1	A	=RAND()		
3	2	B	=RAND()		
4	3	C	=RAND()		
5	4	D	=RAND()		
6	5	E	=RAND()		
7	6	F	=RAND()		
8	7	G	=RAND()		
9	8	H	=RAND()		
10	9	I	=RAND()		
11	10	J	=RAND()		
12	11	K	=RAND()		

## PROTEOMICS SAMPLE RANDOMIZATION GUIDELINES

## 2. Instructions for Randomization (cont.)

Method 2 (cont.): Randomize all samples in Microsoft Excel.

- 2 This will return a random number between 0 and 1.

Sample	Subject ID	Random Number
1	A	0.848061913
2	B	0.634068282
3	C	0.547018794
4	D	0.473106864
5	E	0.082132382
6	F	0.438896711
7	G	0.993017183
8	H	0.242127133
9	I	0.690458138
10	J	0.388952856
11	K	0.358535944

- 3 Select all entries within the sheet. Go to the *Data* tab at the top of the program and select data. Click on *Filter*.

Sample	Subject ID	Random Number
1	A	0.793968412
2	B	0.983704307
3	C	0.311616814
4	D	0.539185032
5	E	0.757026643
6	F	0.953055951
7	G	0.368876192
8	H	0.584303977
9	I	0.247577406
10	J	0.751036402
11	K	0.790840287

- 4 Sort the data by the random number from smallest to largest. Use this to arrange your samples within each plate in the configuration indicated on page 3.

Sample	Subject	Random Number
Sort Smallest to Largest		
Sort Largest to Smallest		
Sort by Color		
Sheet View		
Clear Filter From "Random Number"		
Filter by Color		
Number Filters		
Search		
<input checked="" type="checkbox"/> (Select All)		