

Title Page

Running title: DNA microarray identified pathogens of Purulent meningitis

Title: Rapid pathogen identification using a novel microarray-based assay with Purulent meningitis in Cerebrospinal Fluid

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The contribution of each author for the project and production of the article:

Zhenhai Wang: designed project, revised article, and coordinated all aspects of work.

Yuting Hou: participated in clinical experiment, steered chemotherapy and analyzed clinical material, wrote article of clinical part, Prepared figure 1.

Xu Zhang: designed genechip project, participated in genechip and molecular experiment, wrote article of genechip part, Prepared figure 2-4, table 3.

Xiaolin Hou: Designed and screened the probes, Tested the specificity and accuracy of probes, Prepared table 1-2.

Ruofen Wu: collected clinical cases, sorted the dates of clinical.

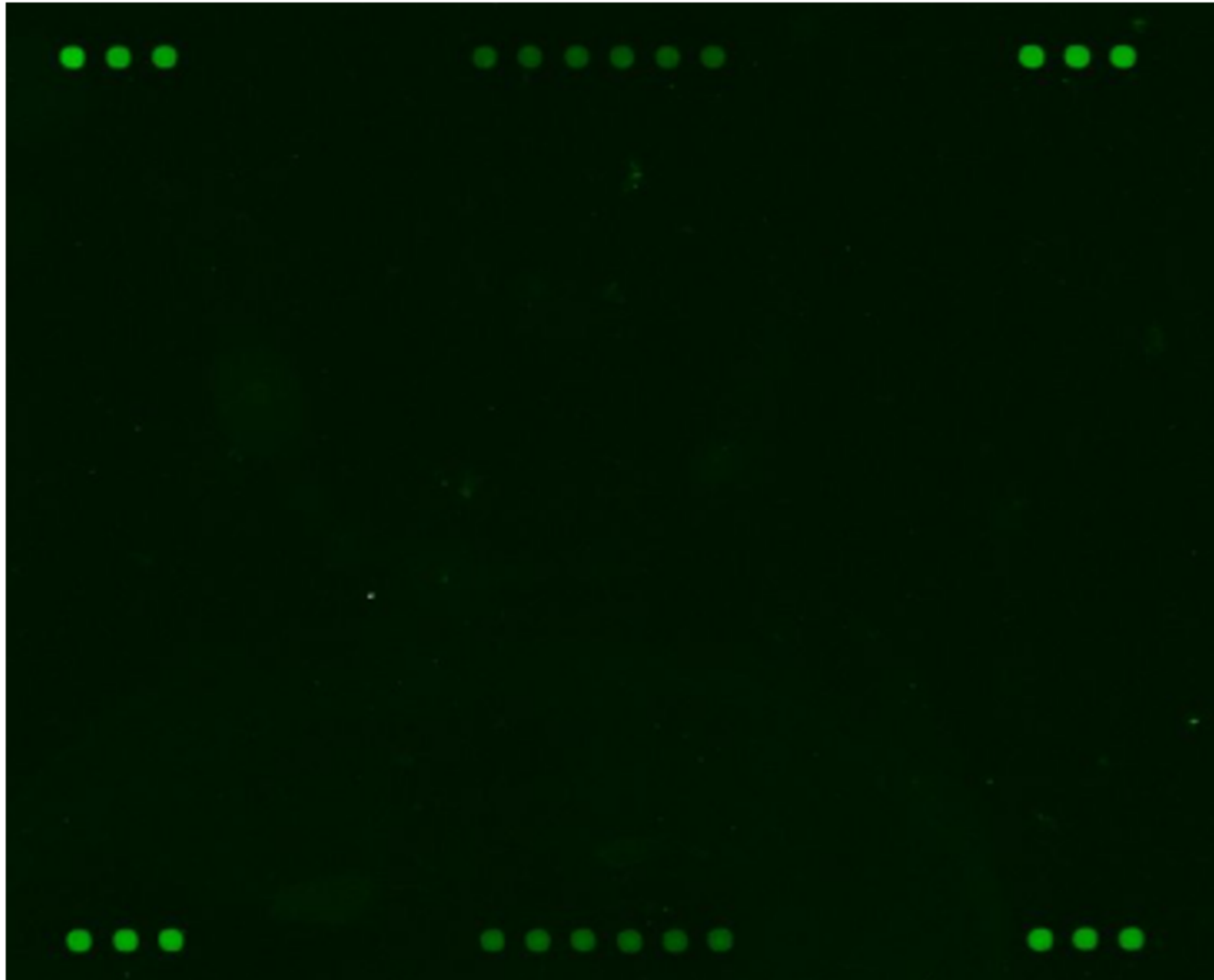
Yanbai Wang: Standard strains micromarry experiment, DNA Extraction.

Xuexian He: analyzed molecular material, prepared reagent and instrument.

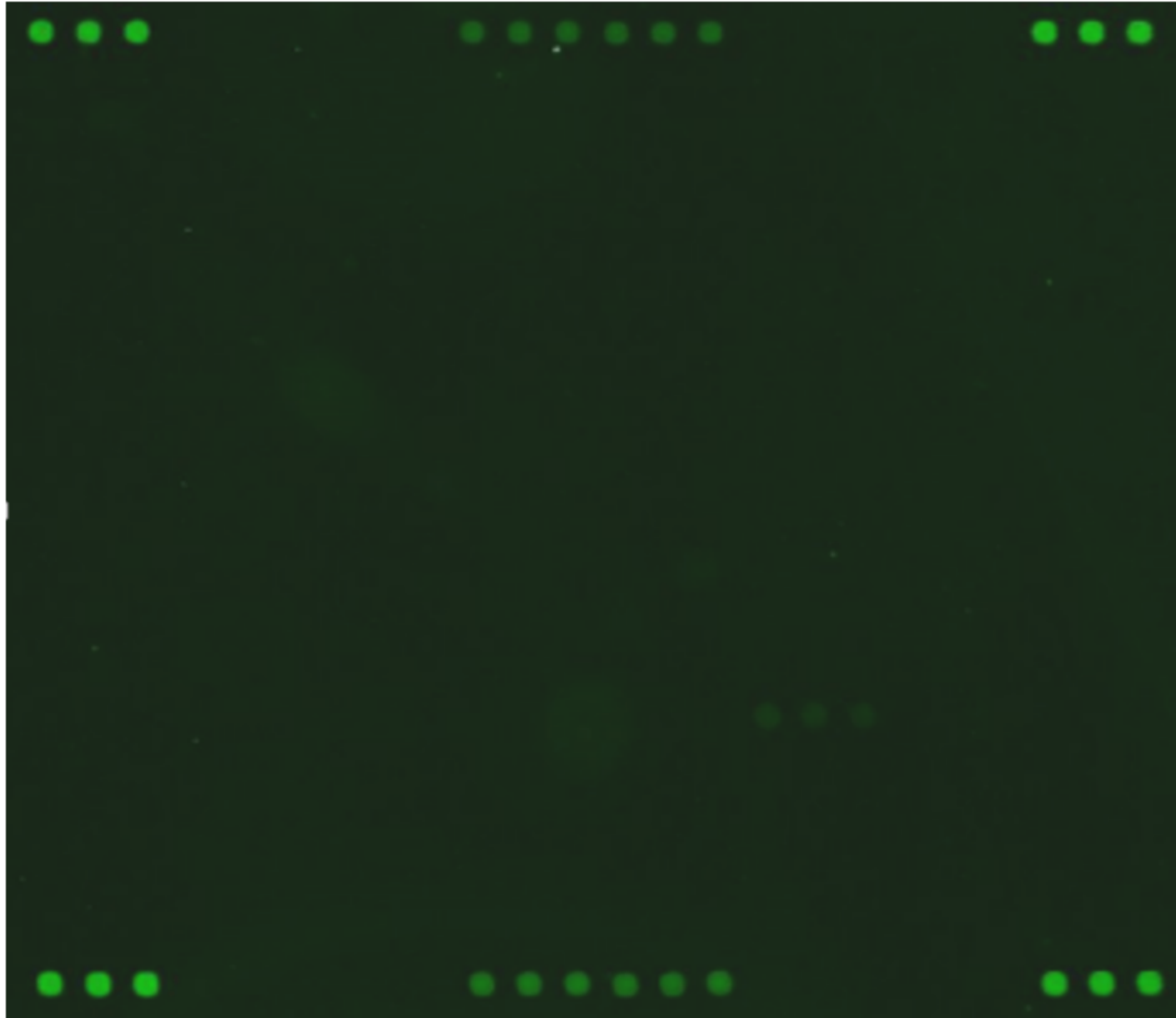
Libin Wang: Optimized the conditions and parameters of microarray preparation.

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Specimen 1 (genechip)



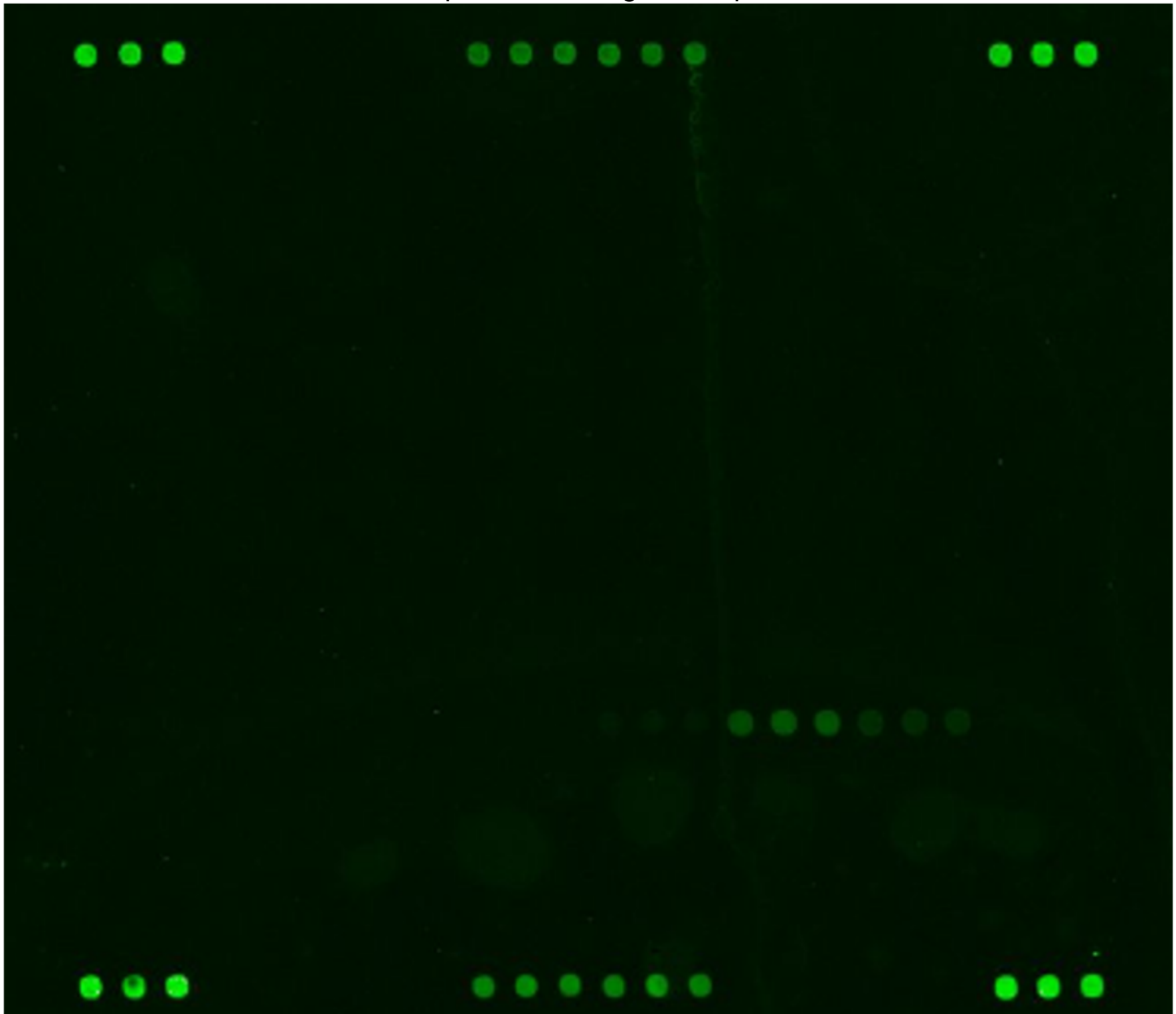
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Specimen 3 (genechip)



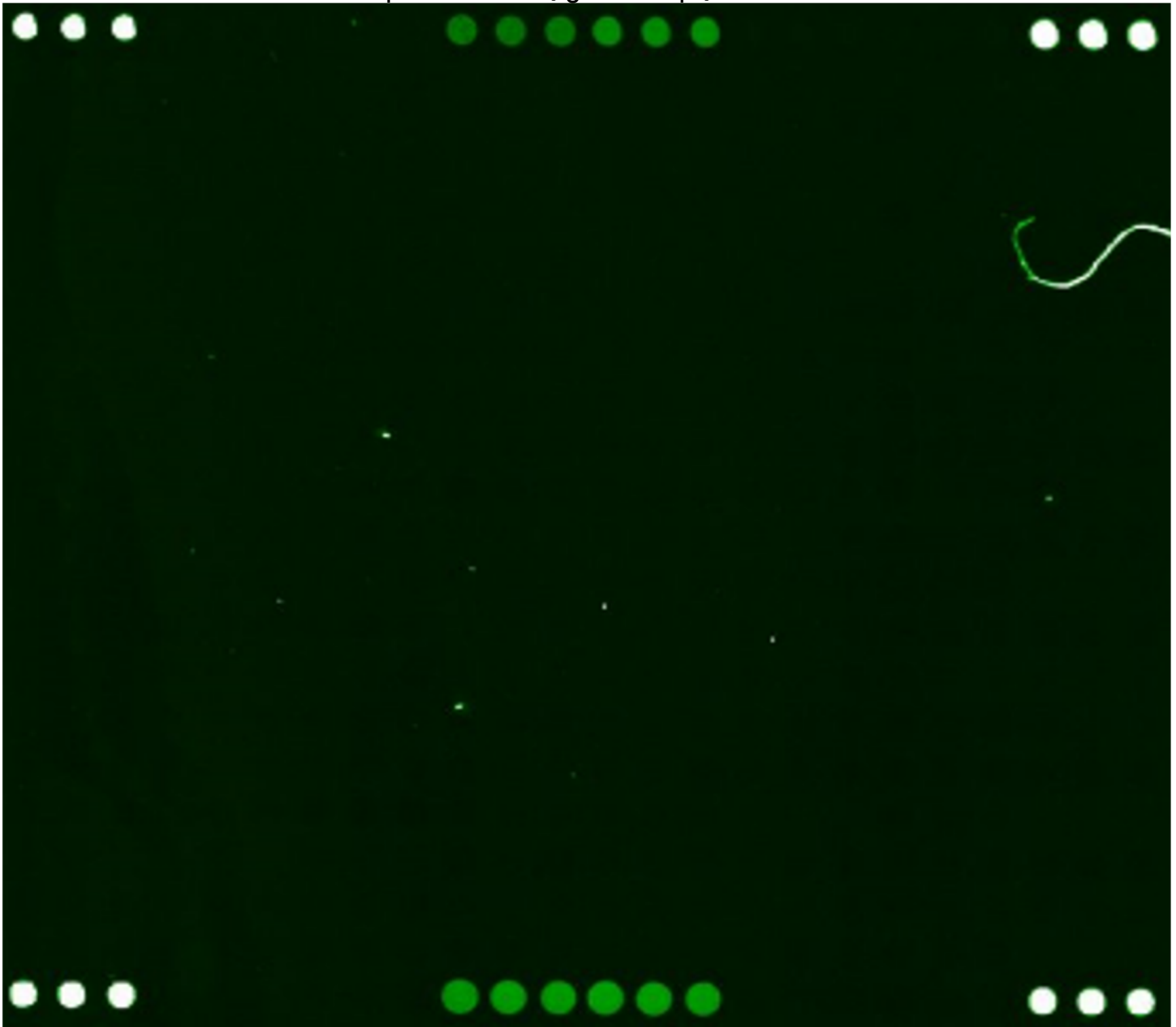
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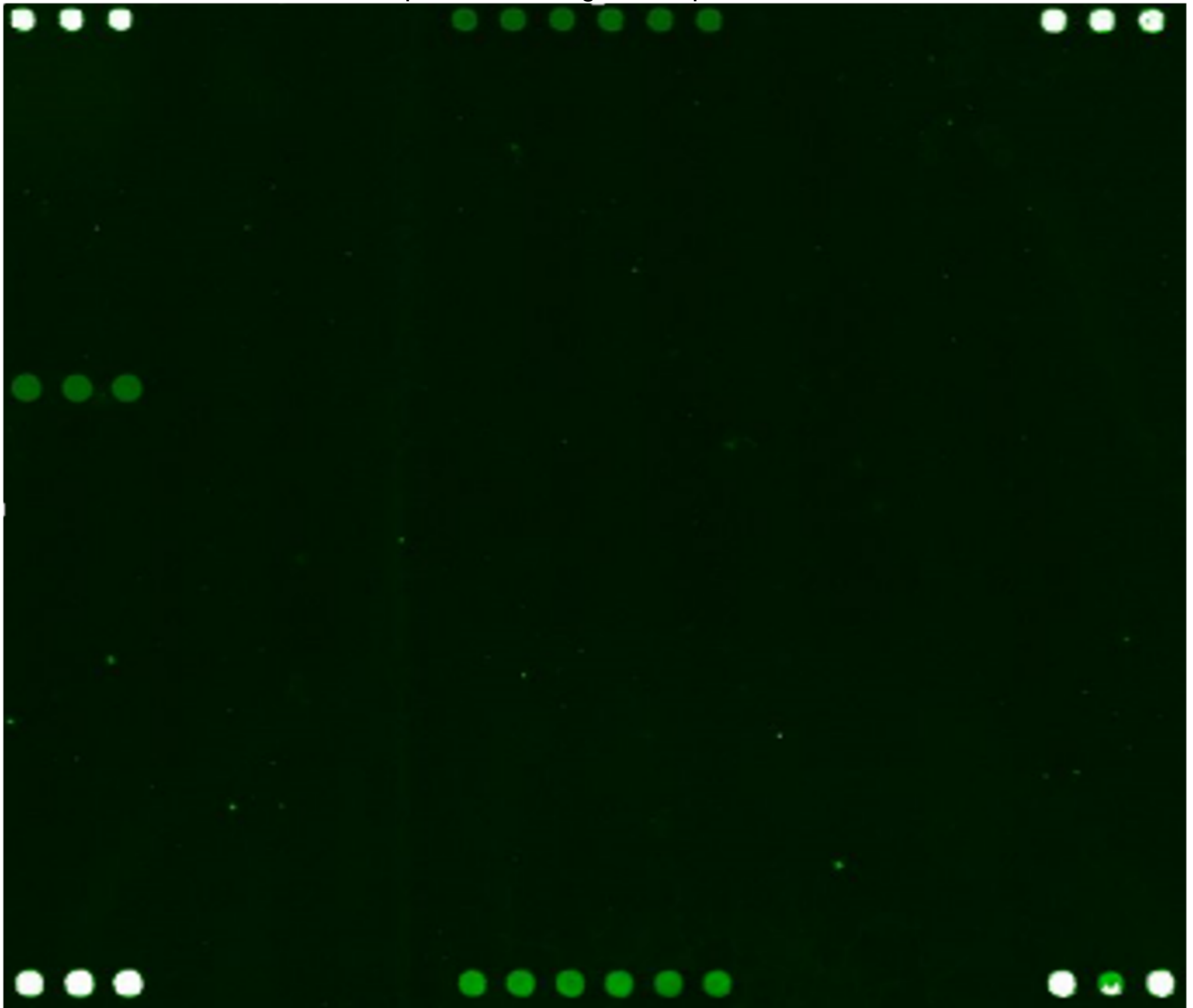
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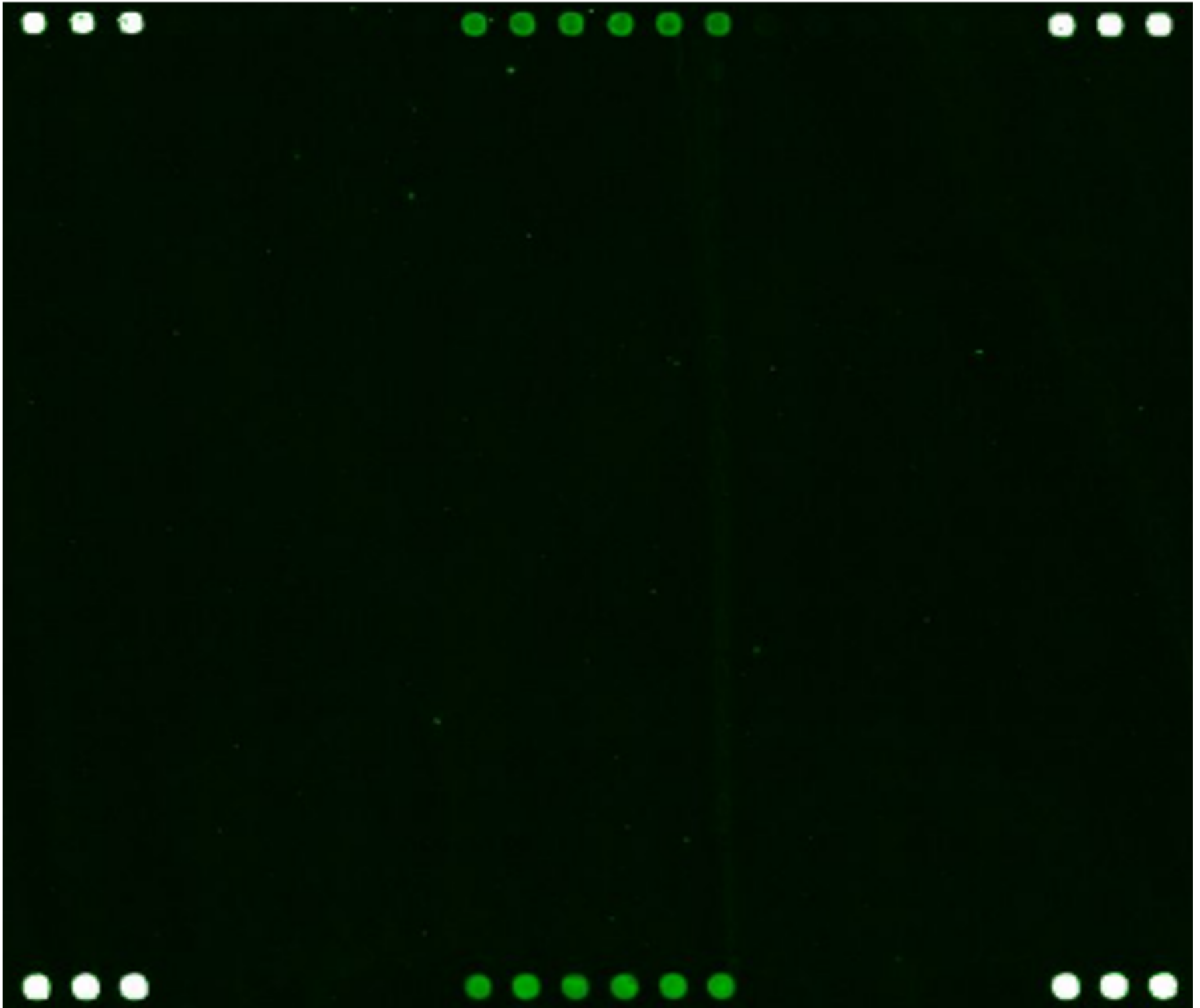
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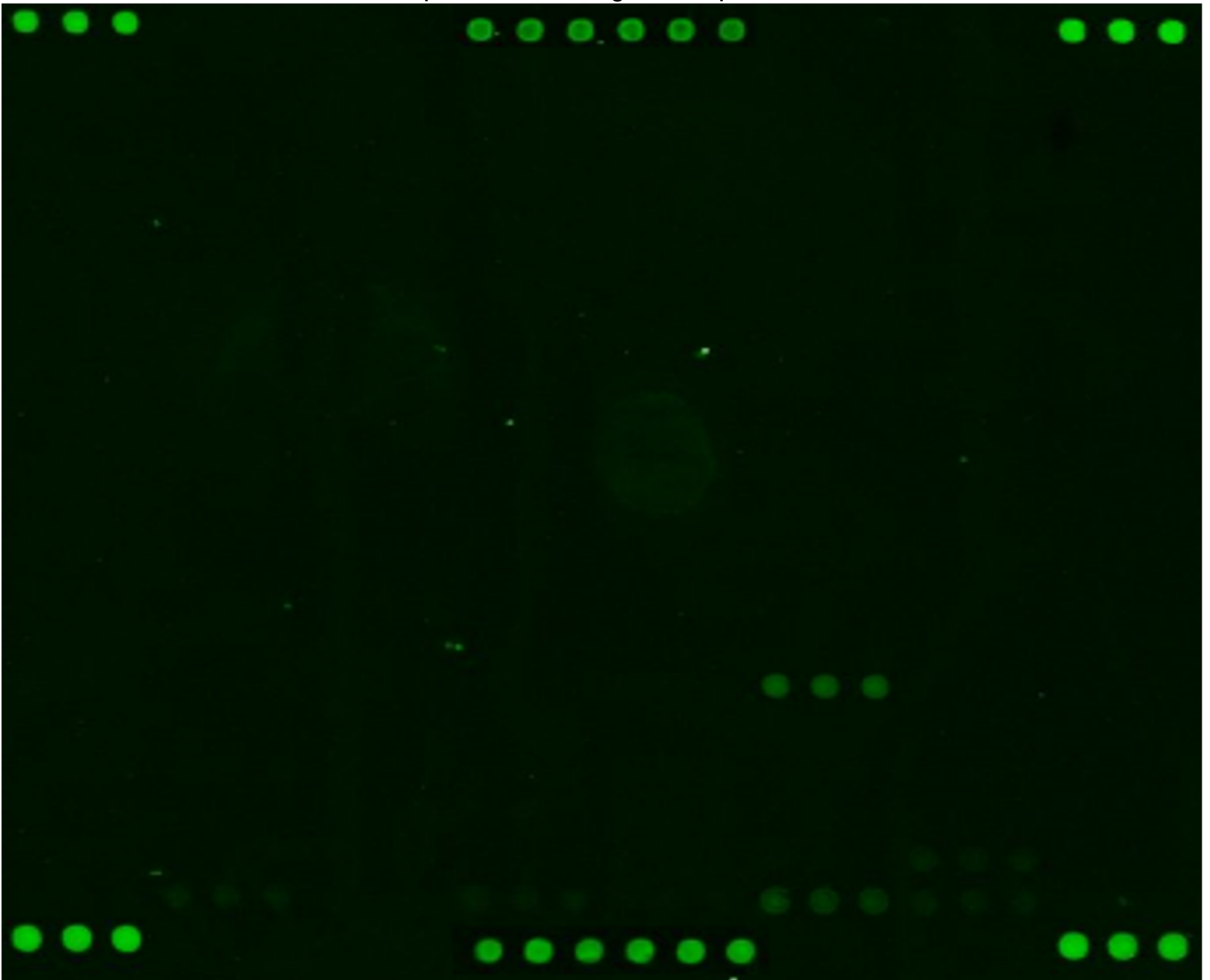
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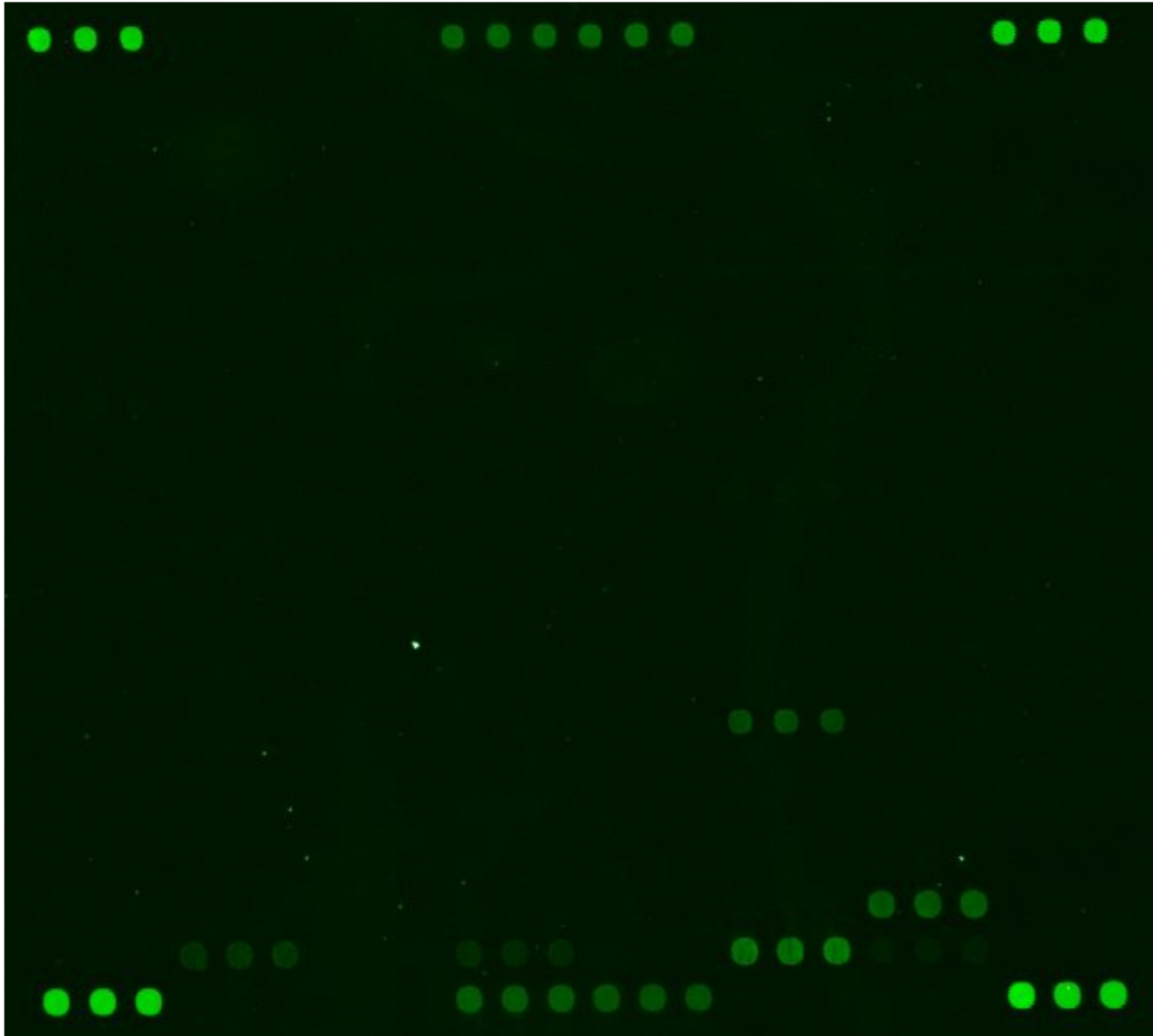
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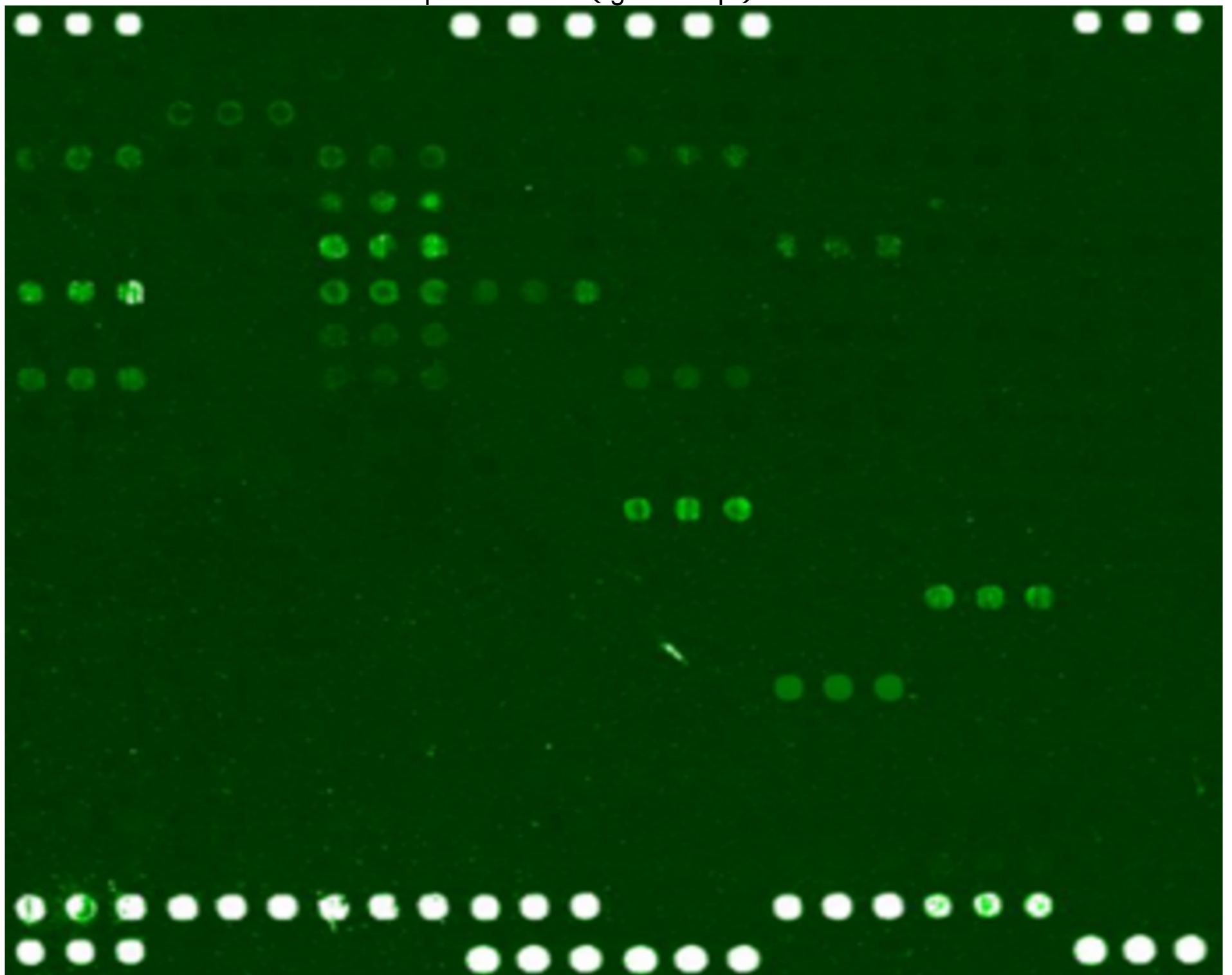
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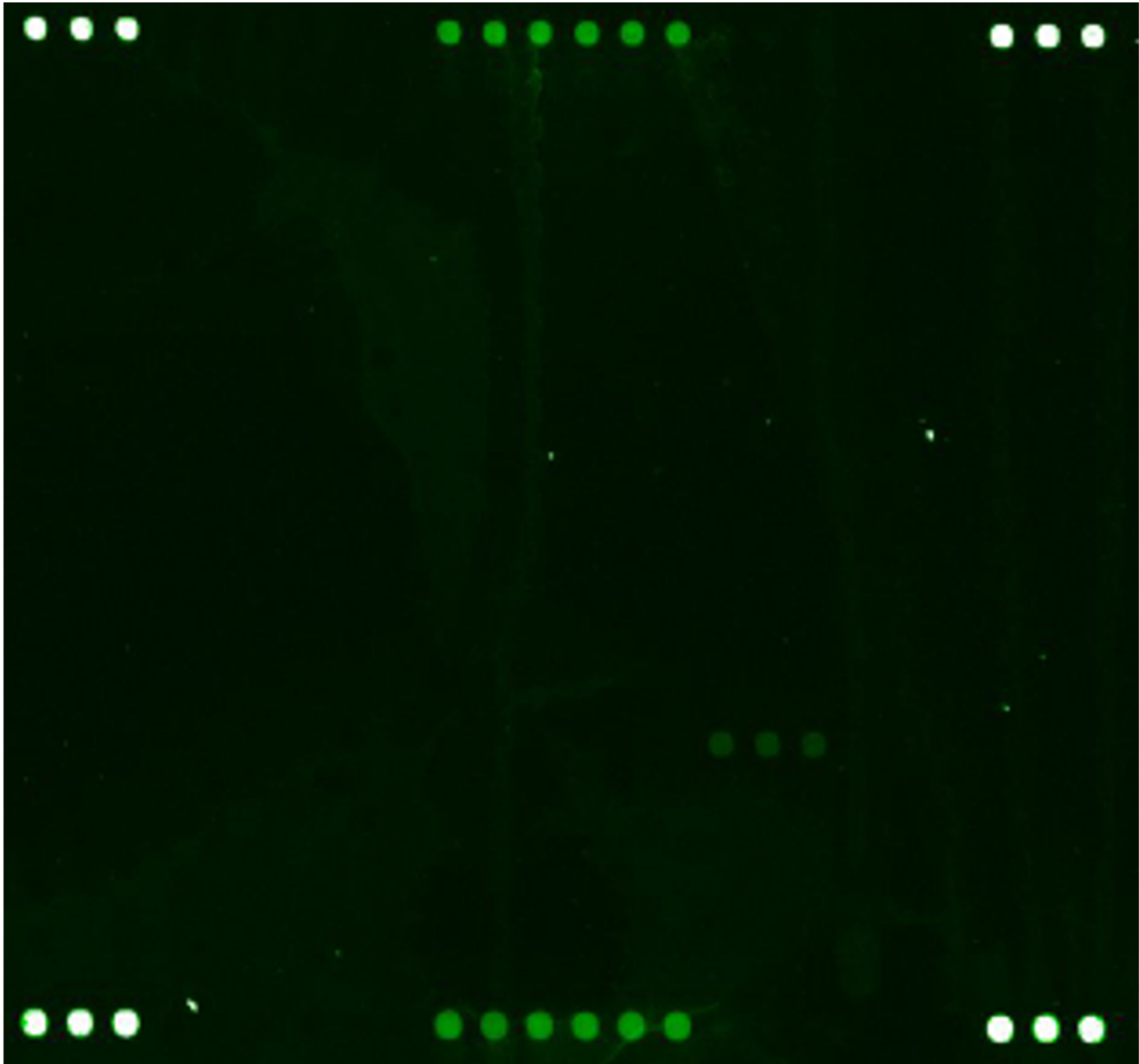
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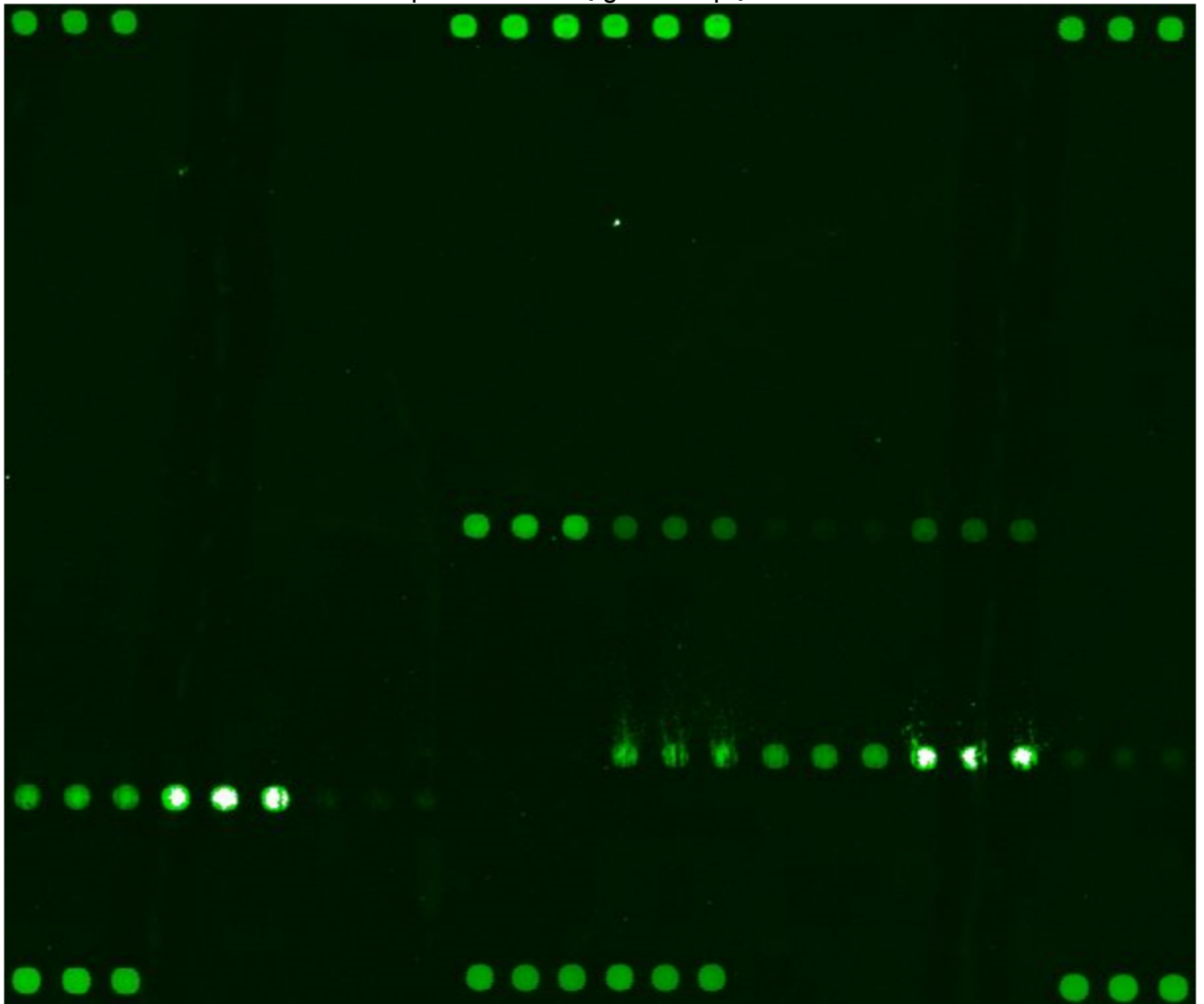
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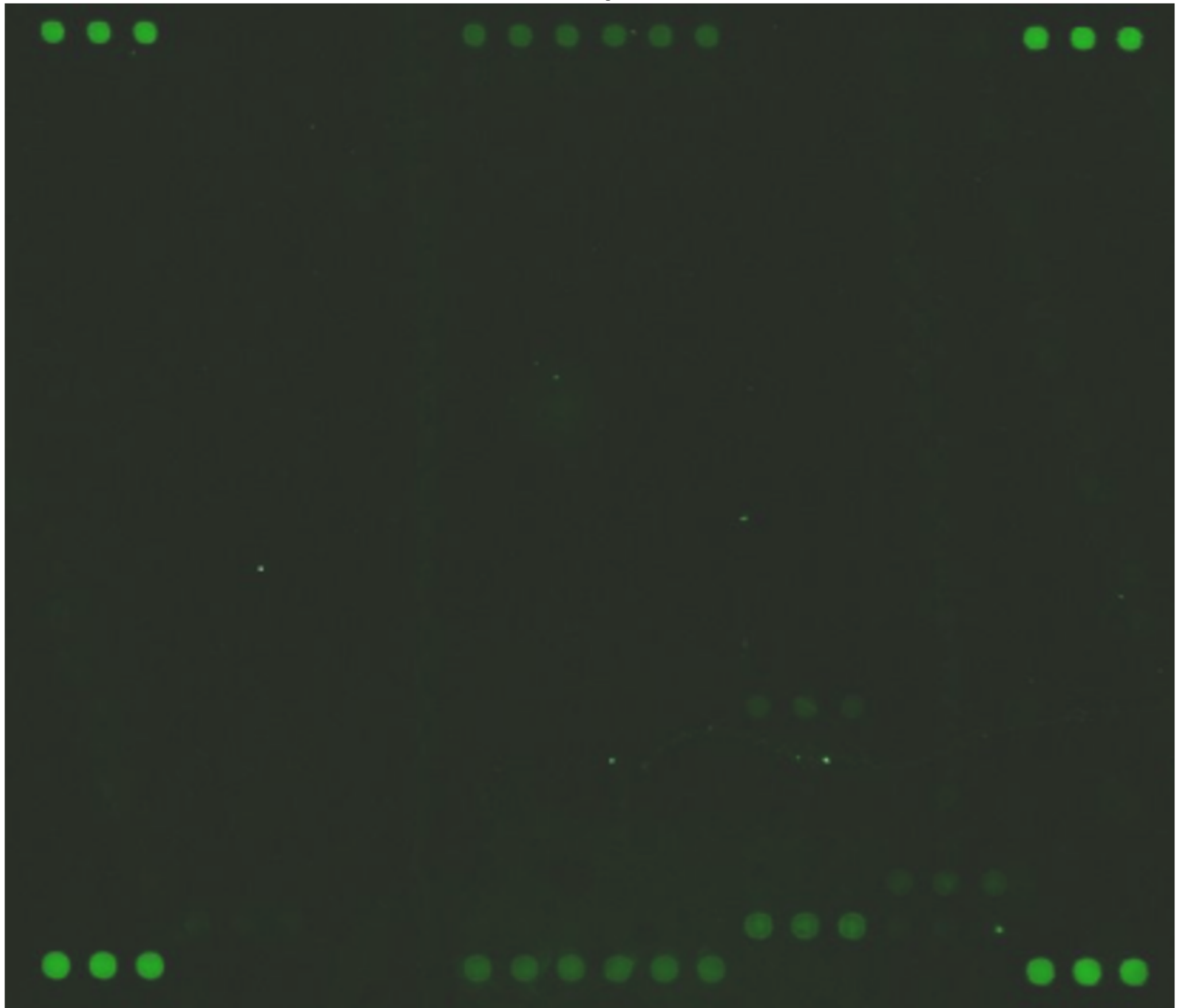
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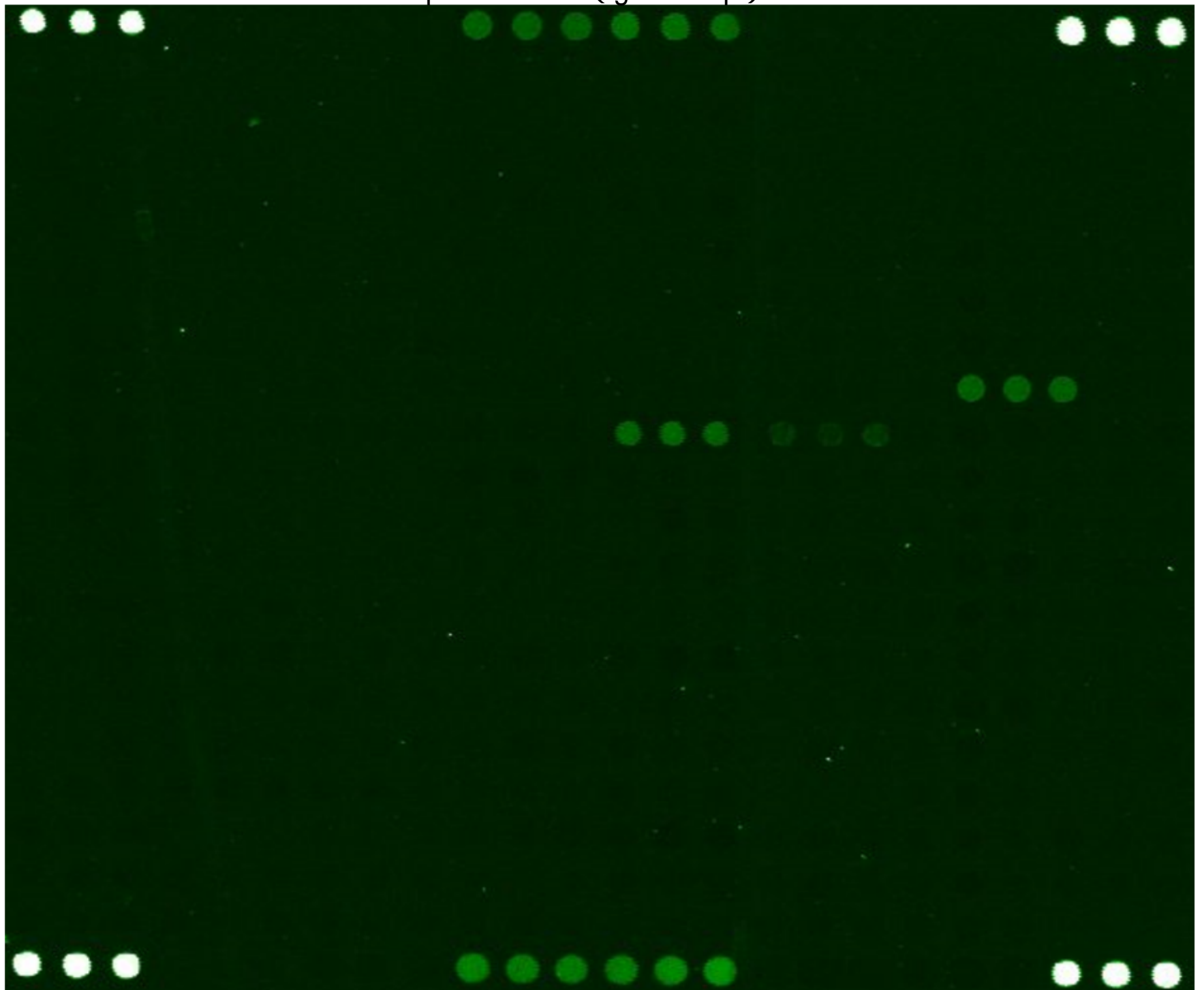
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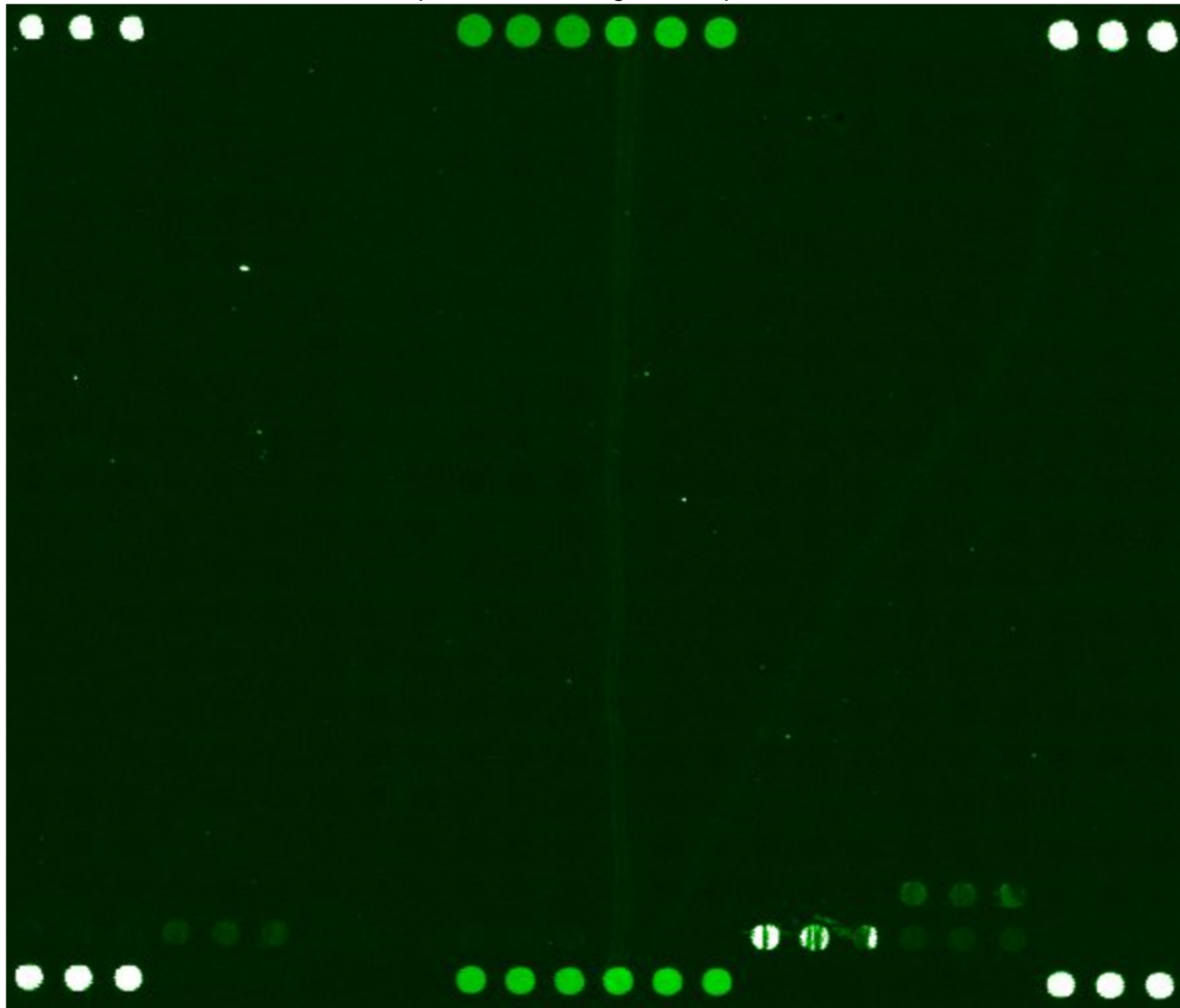
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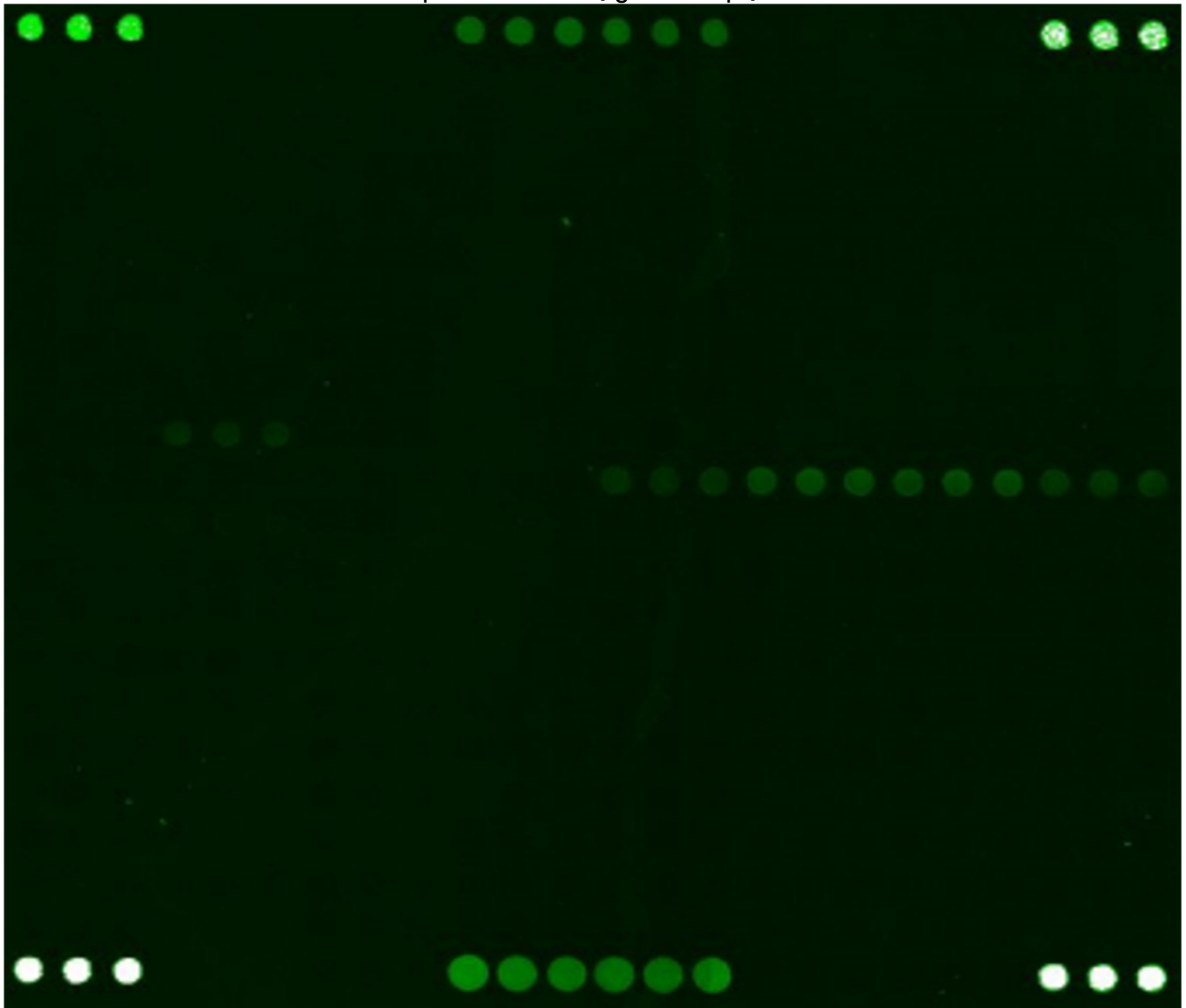
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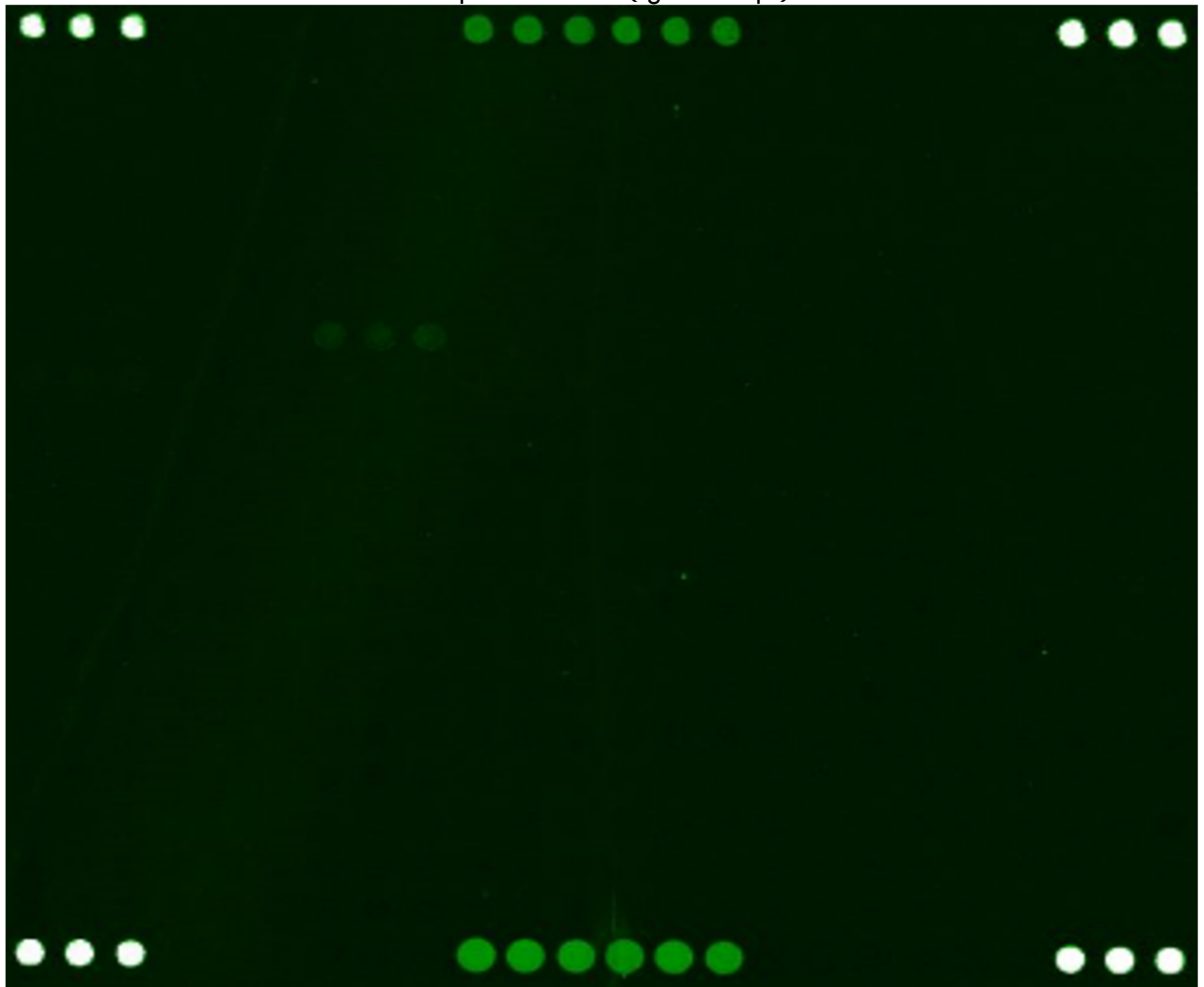
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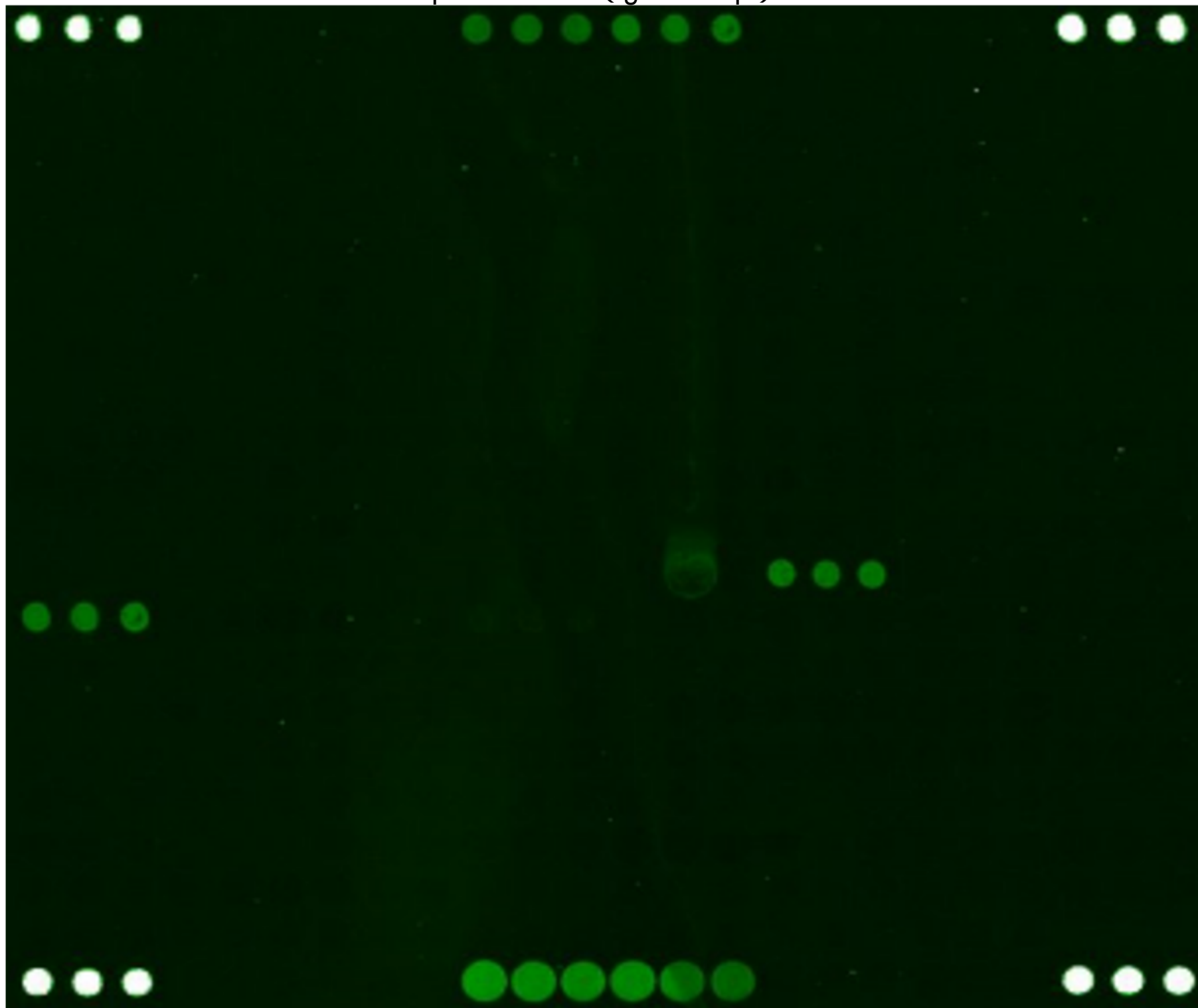
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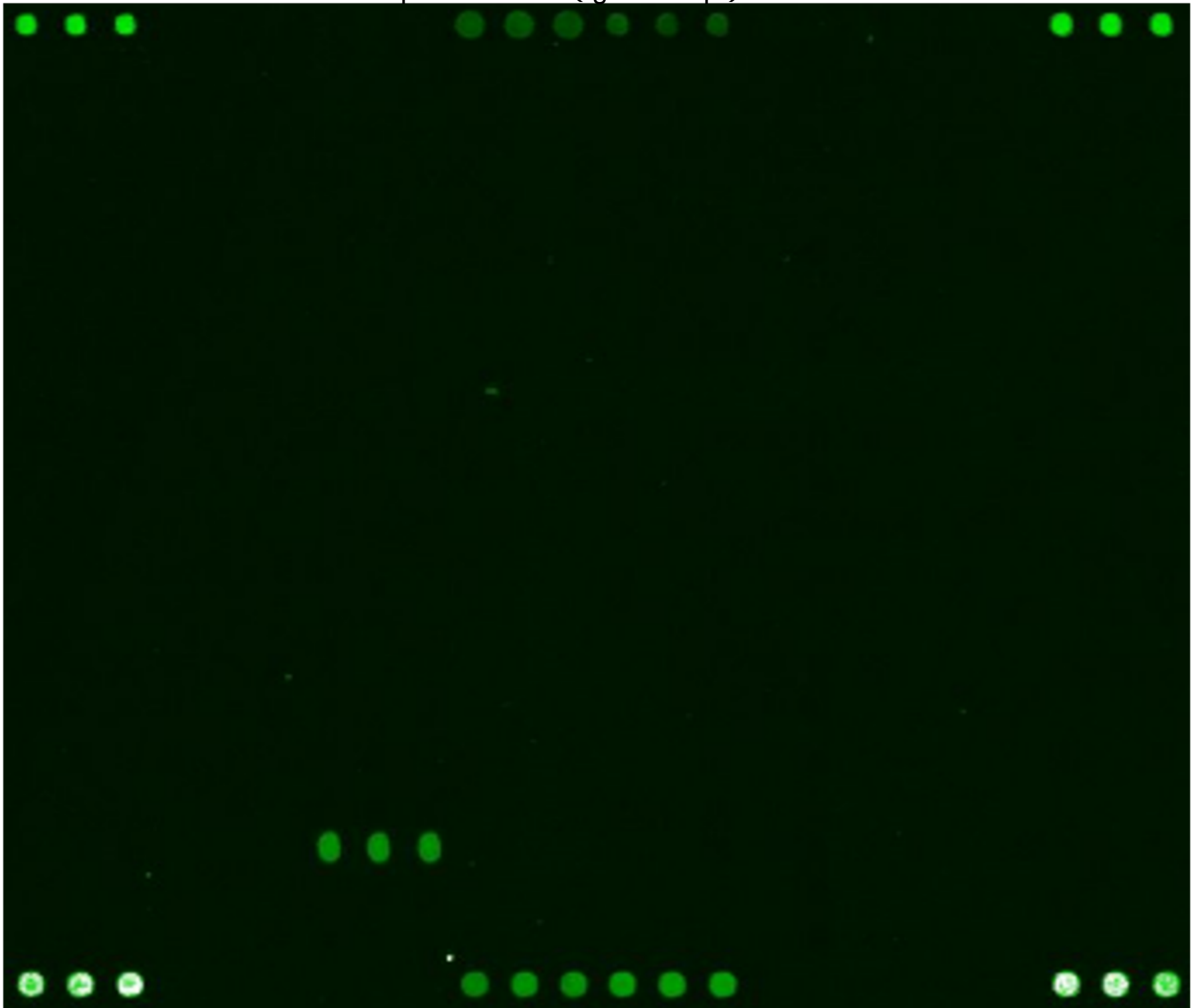
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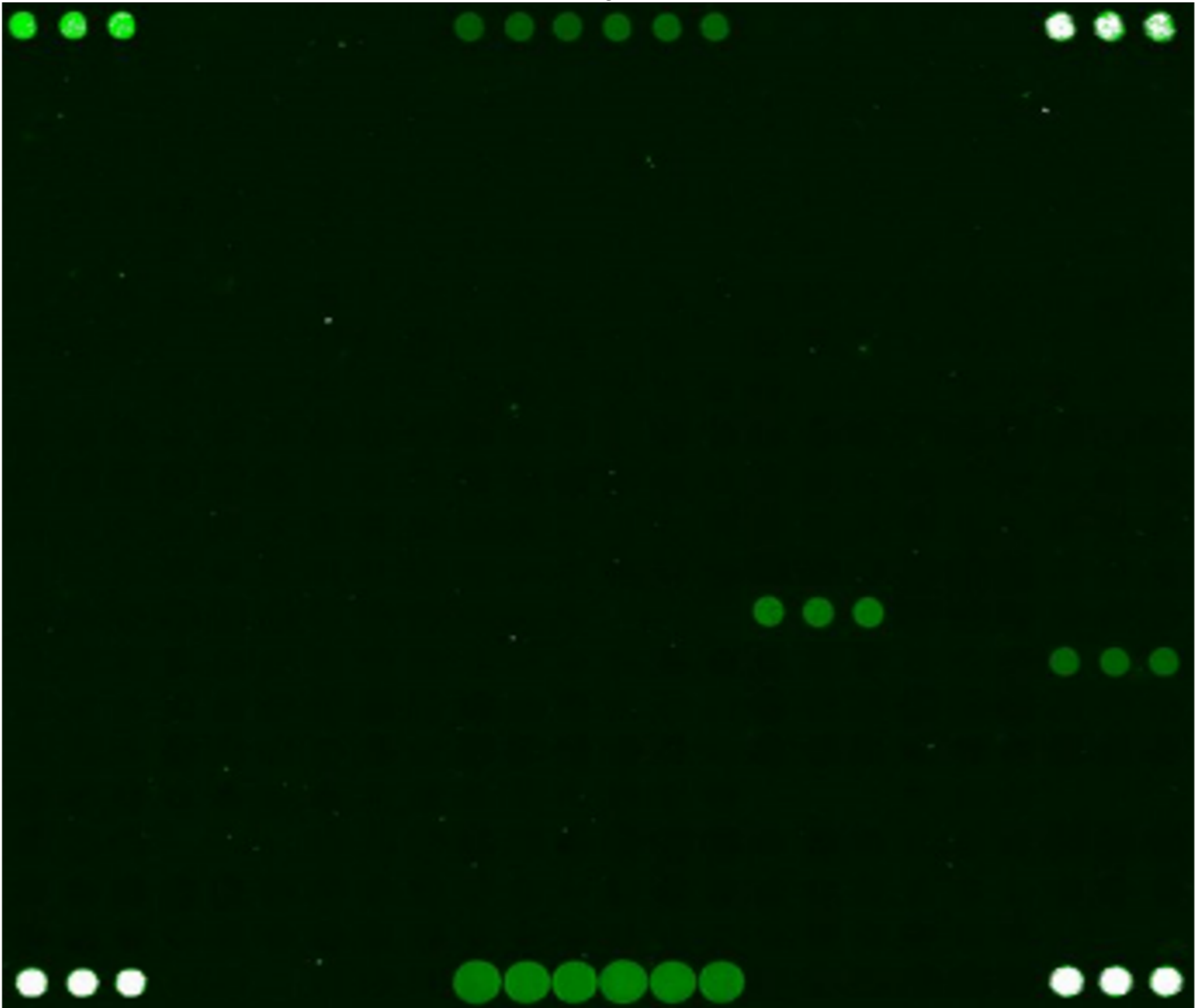
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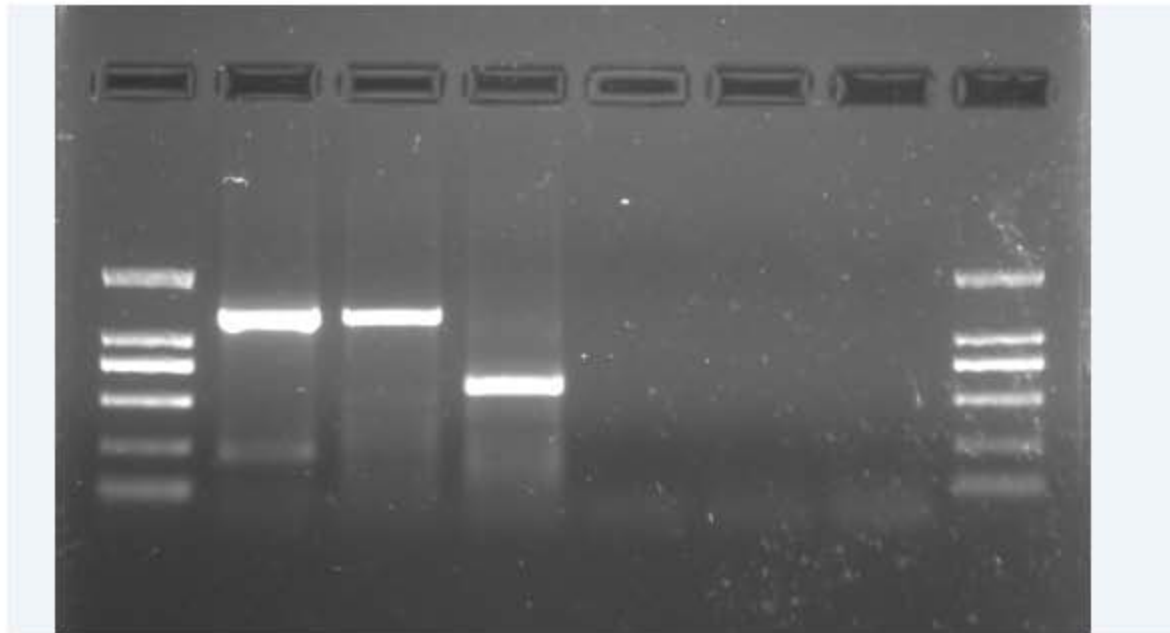
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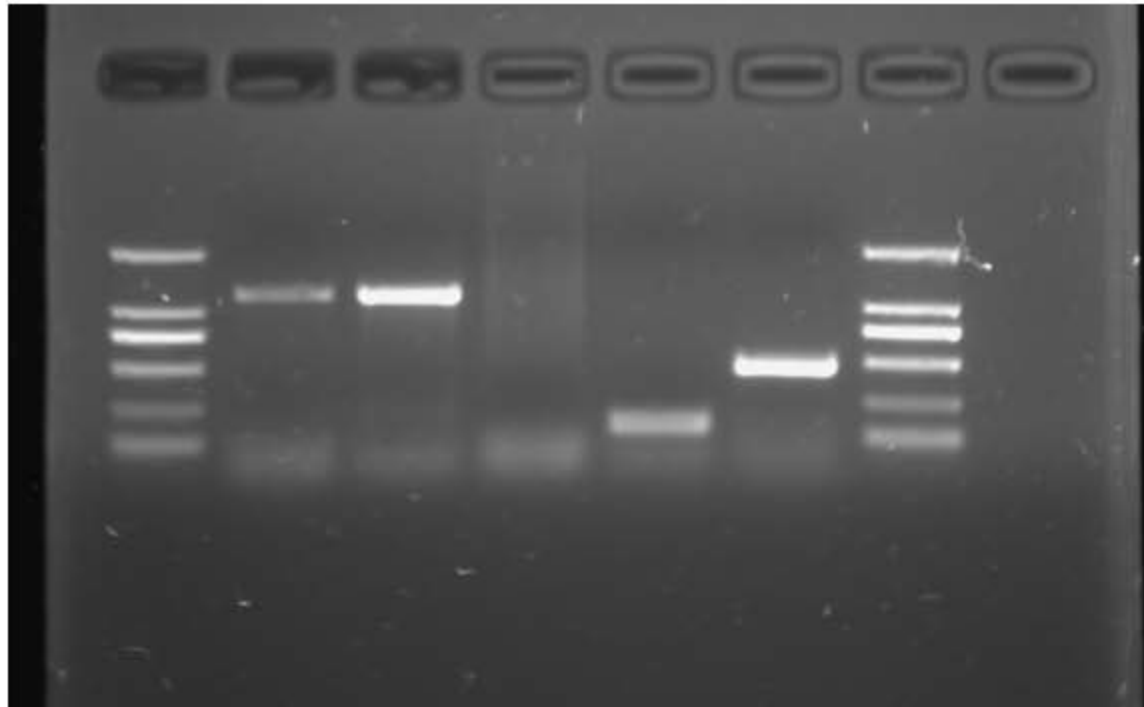
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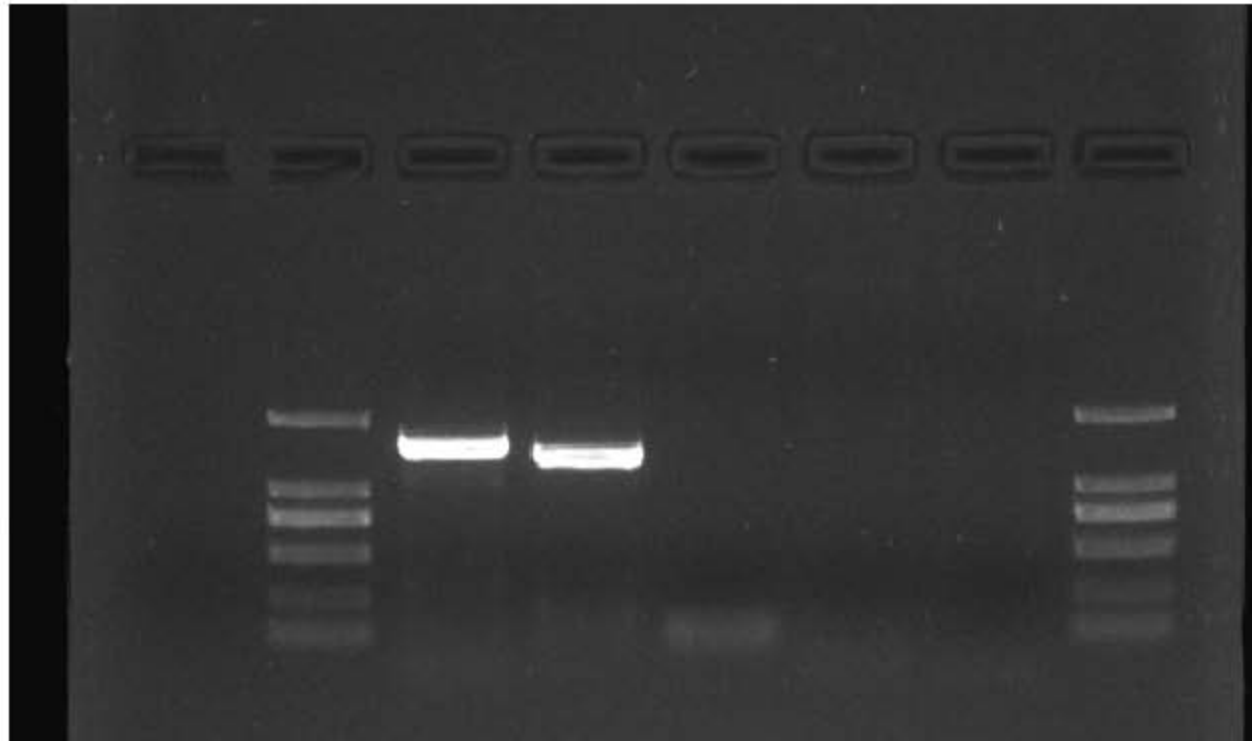
H.influenza standard strain 16s (2) N.meningitides 16s (3) and a specimen (4,5,6,7)



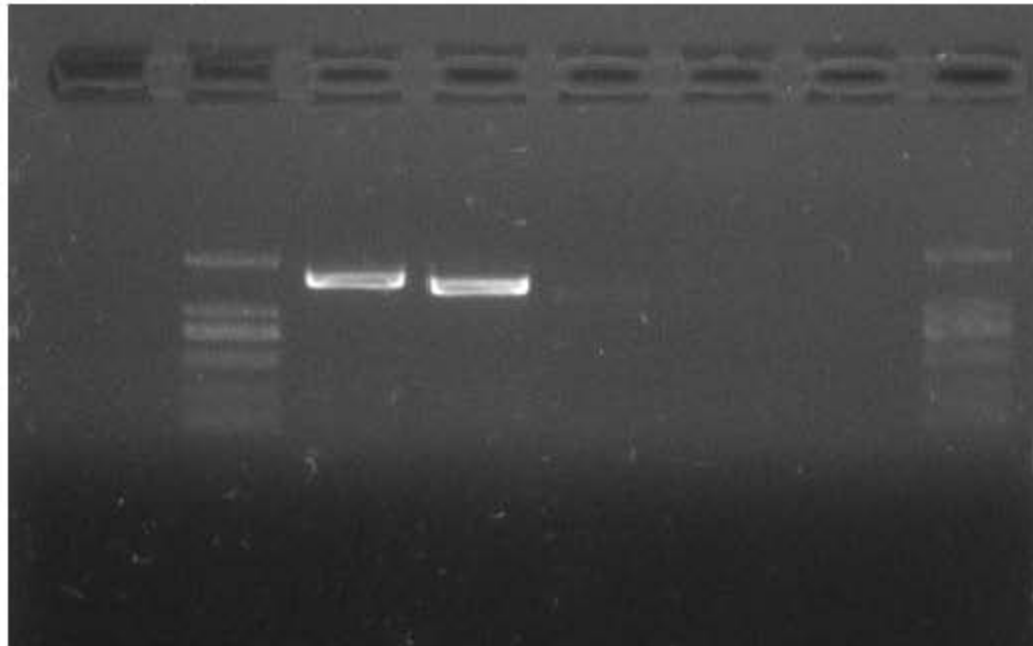
S.aureus standard strain



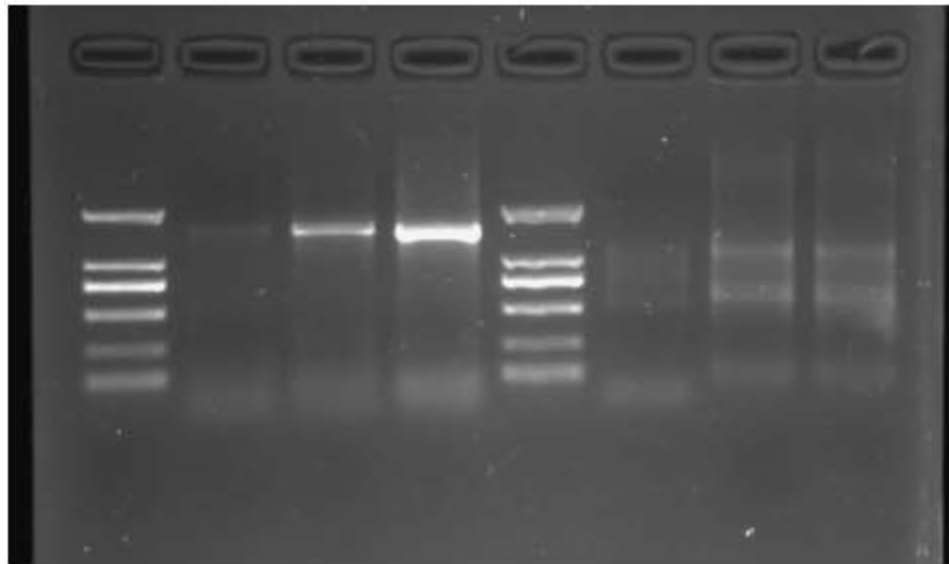
S.coli standard strain



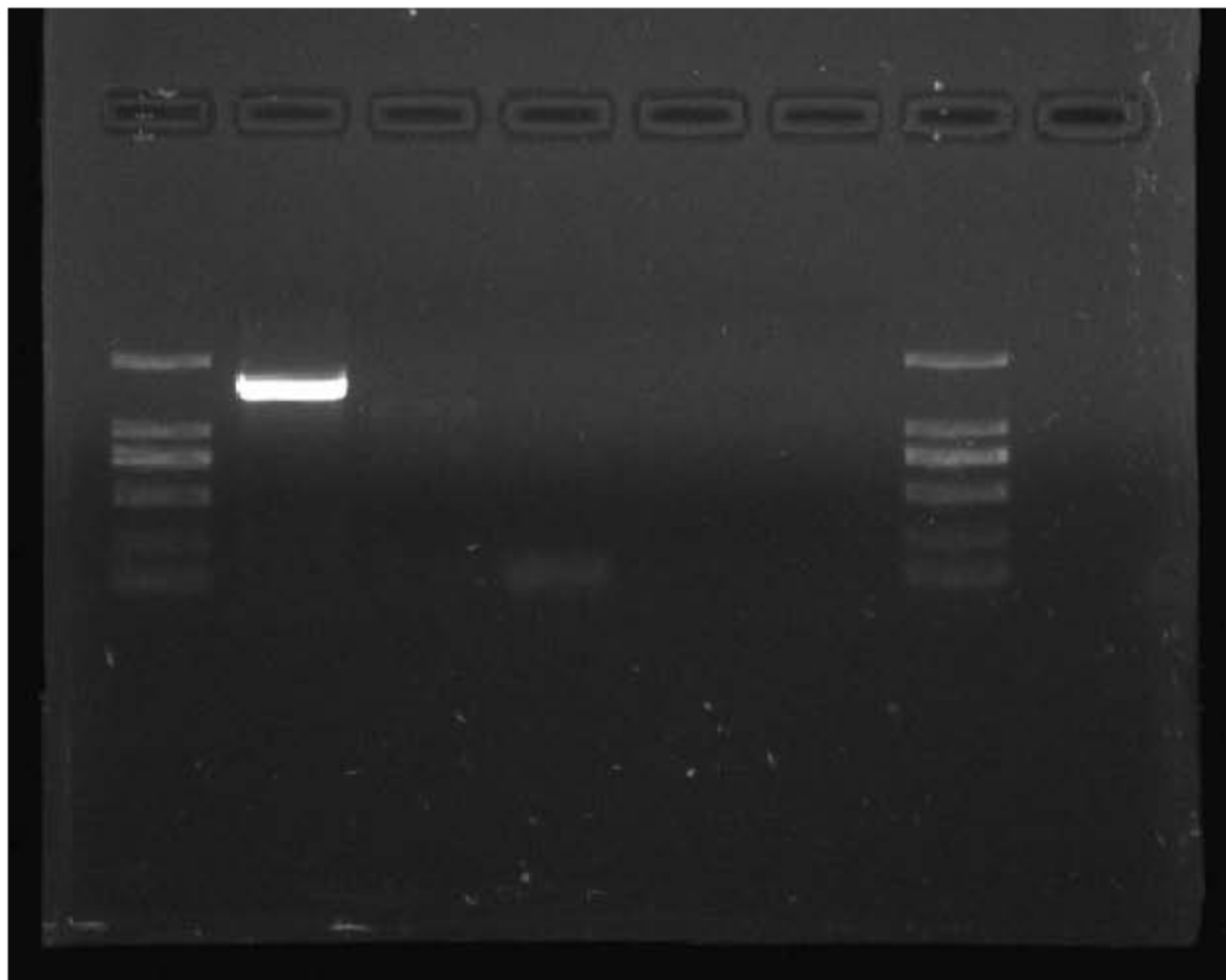
S. epidermidis standard strain



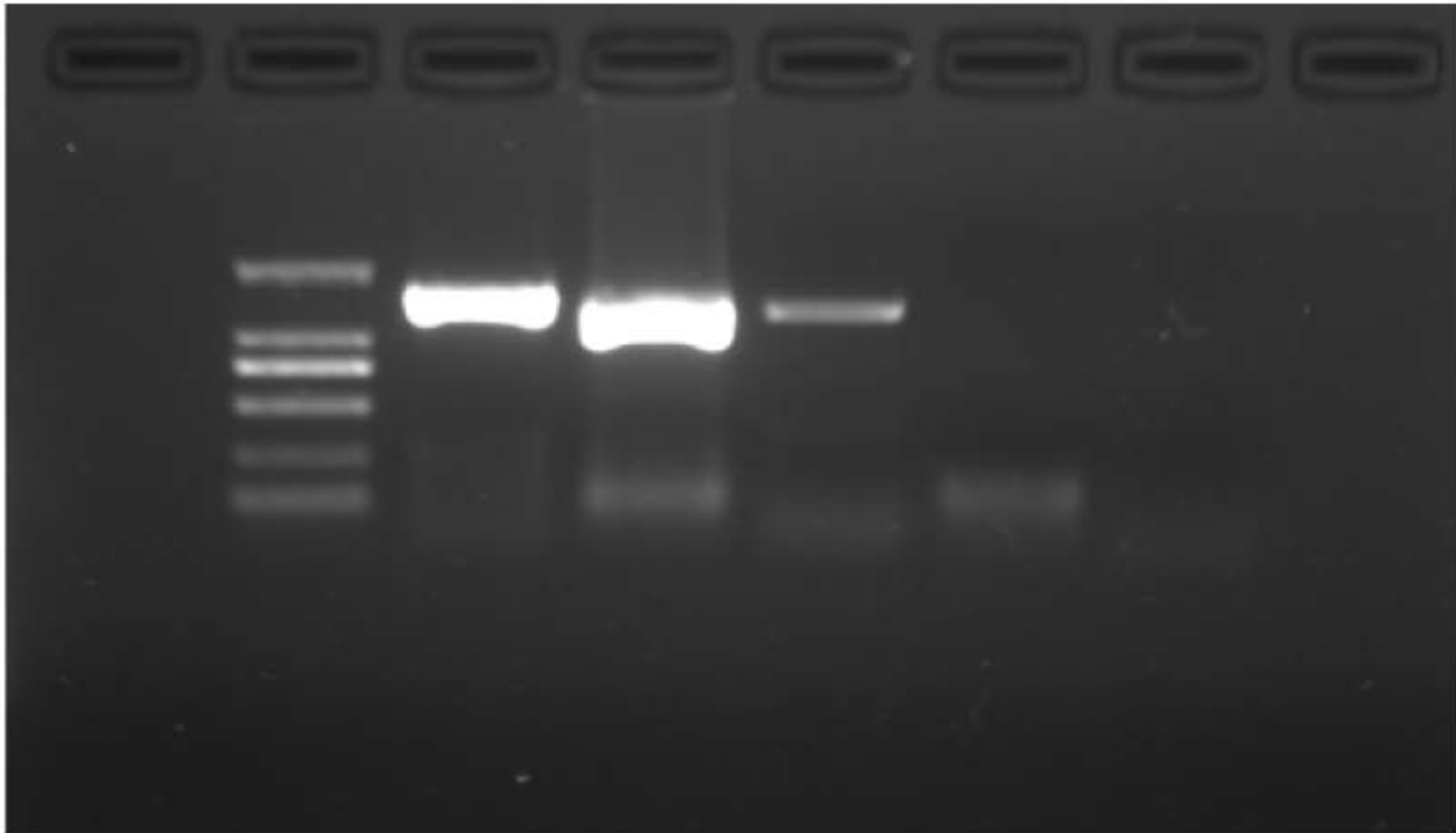
S.pneumoniae standard strain(left)and other specimen(right)



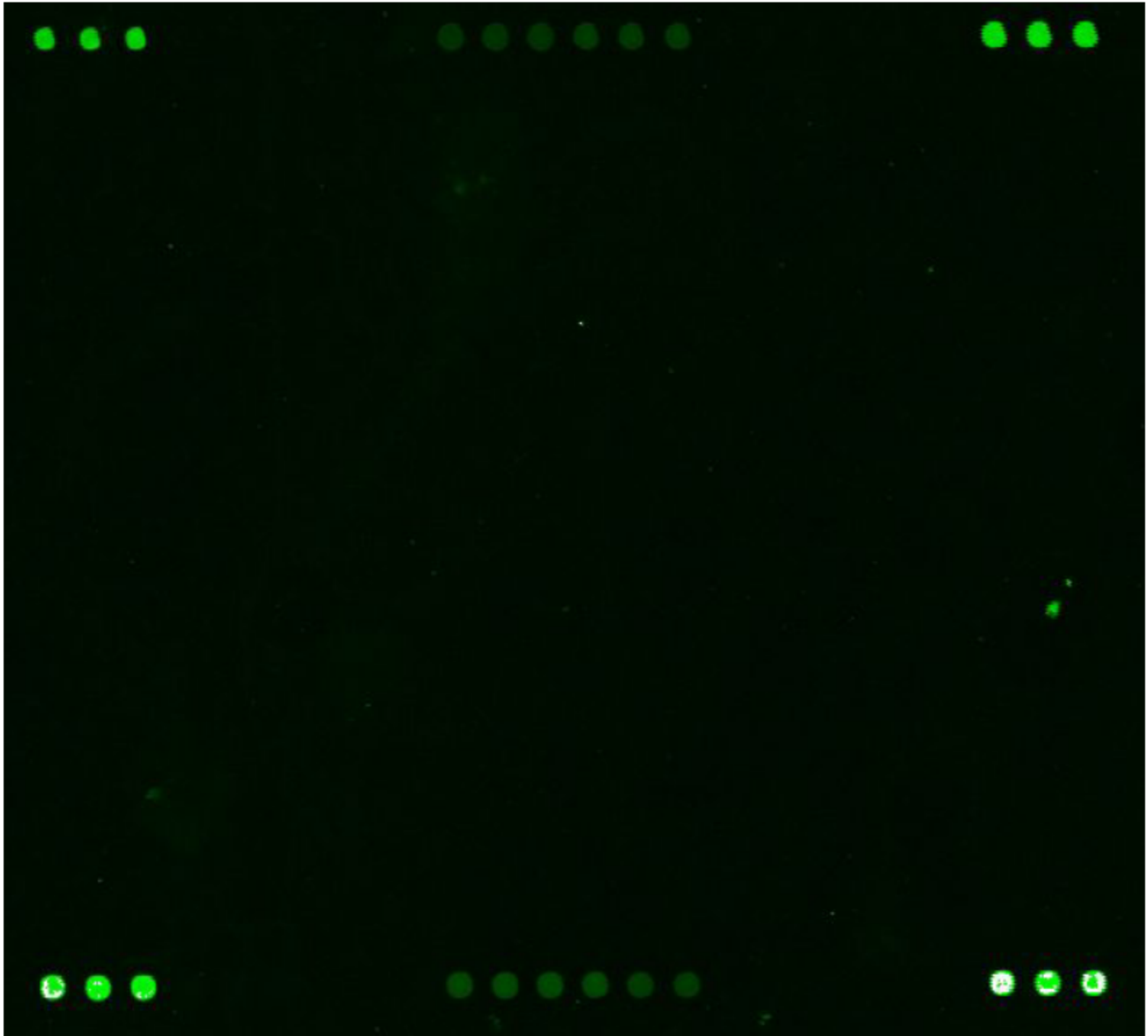
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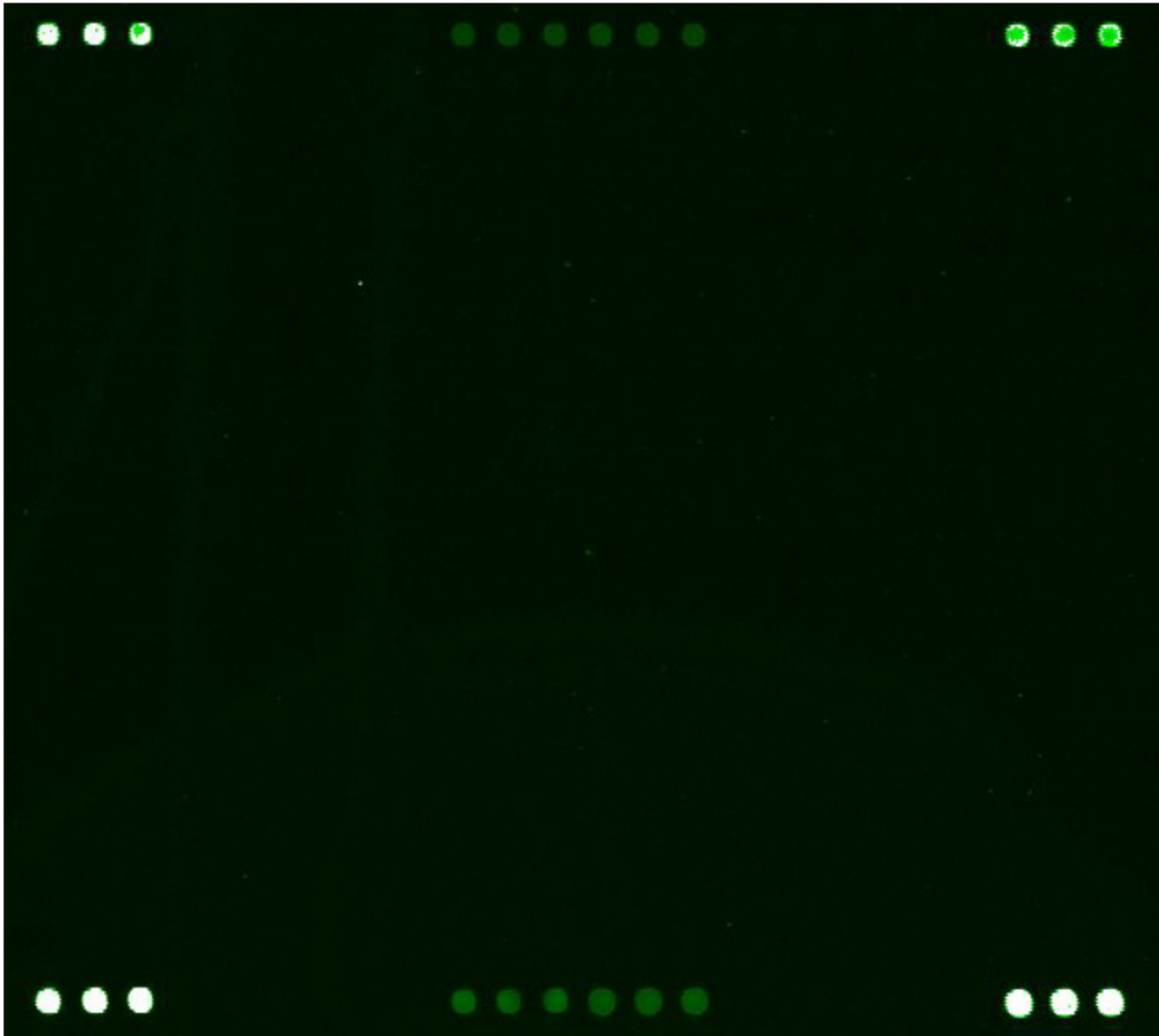
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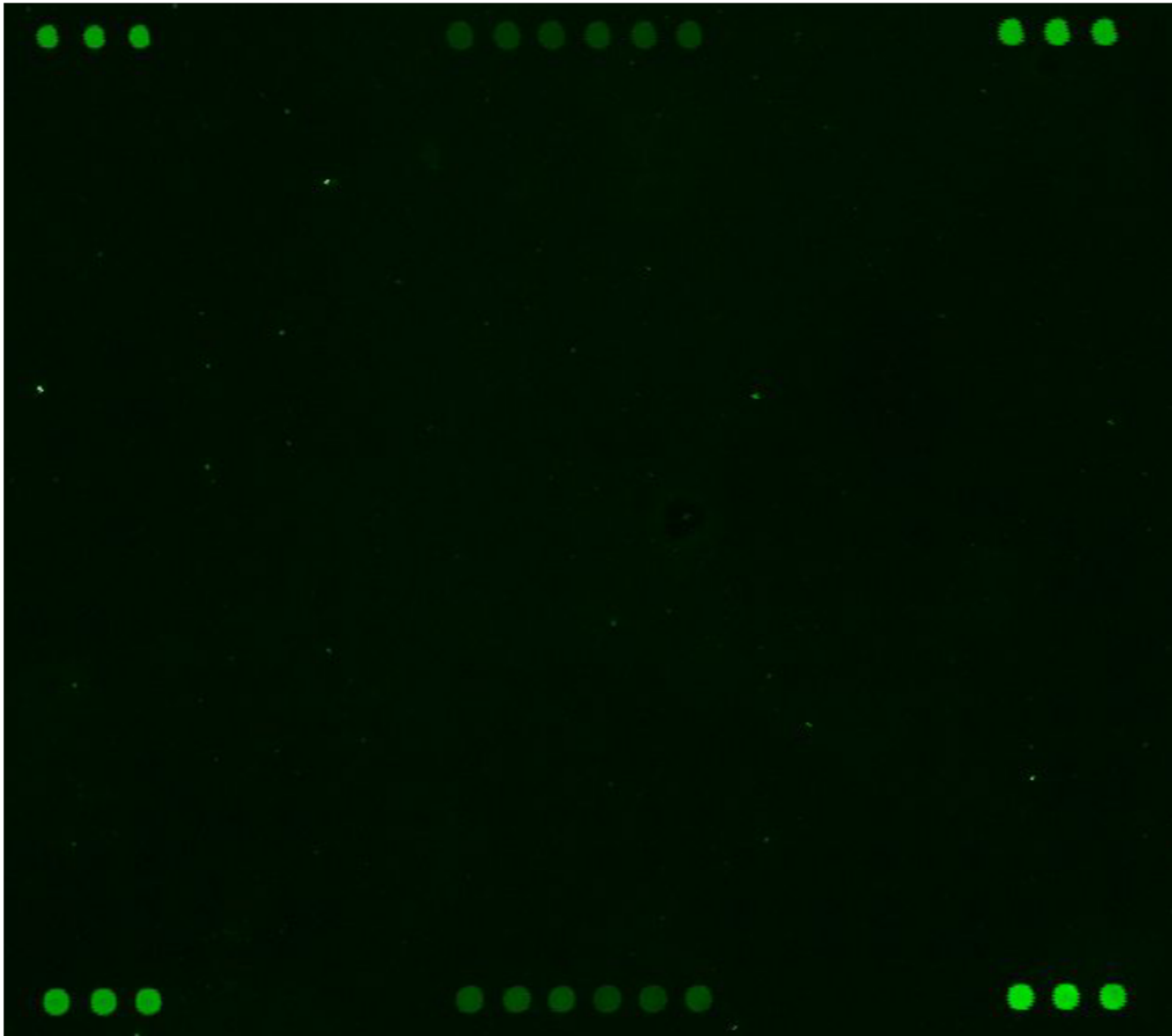
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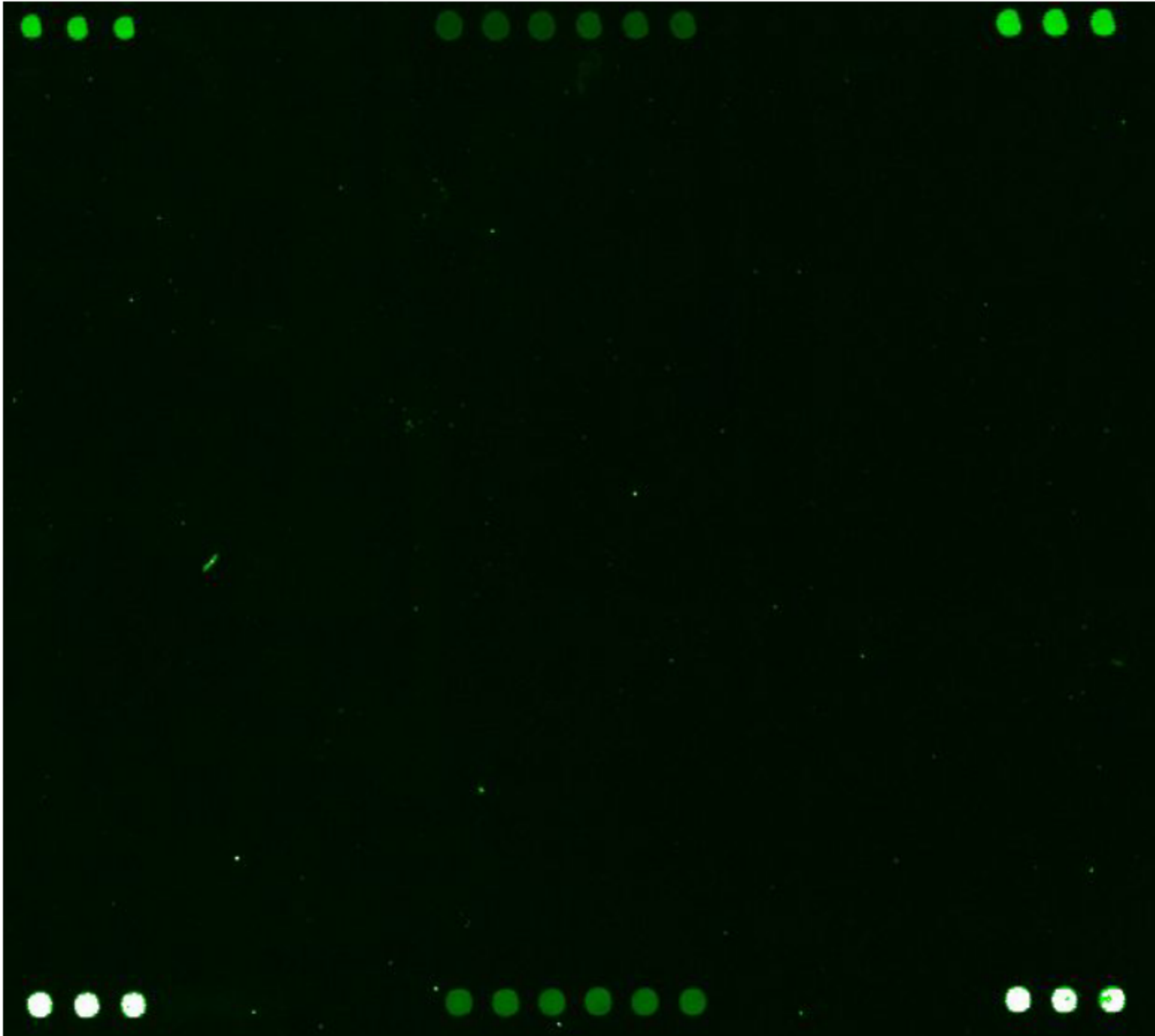
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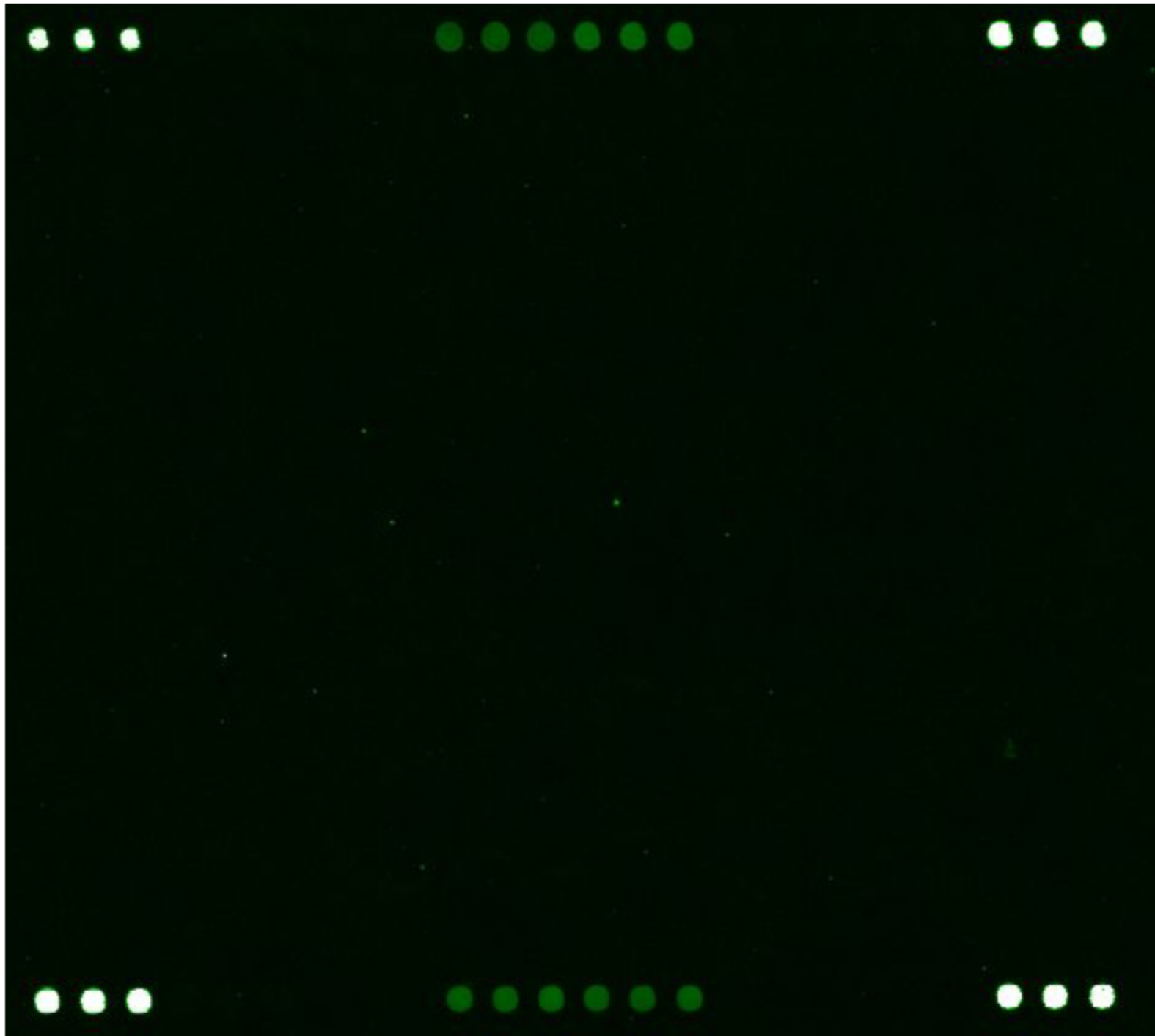
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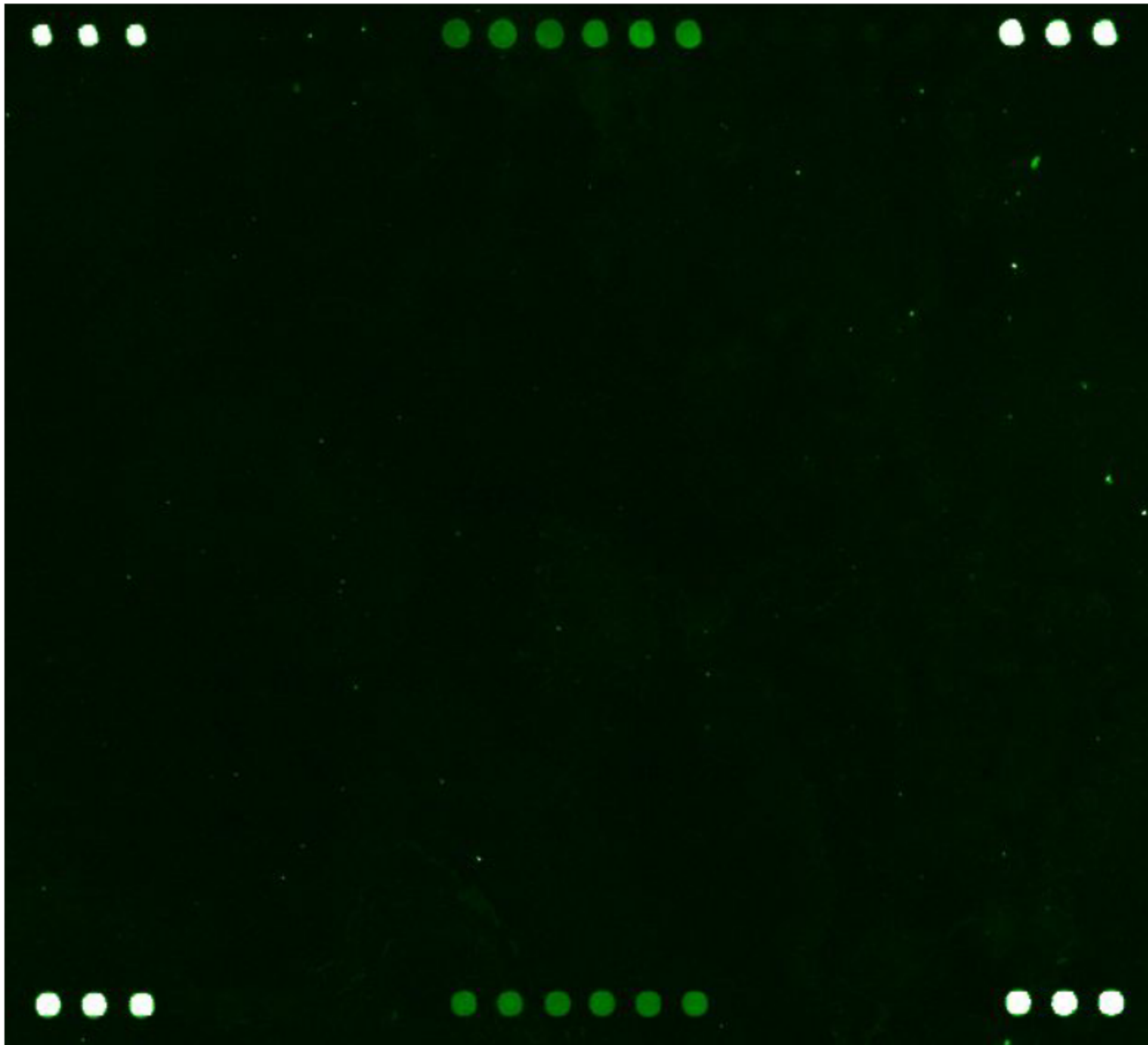
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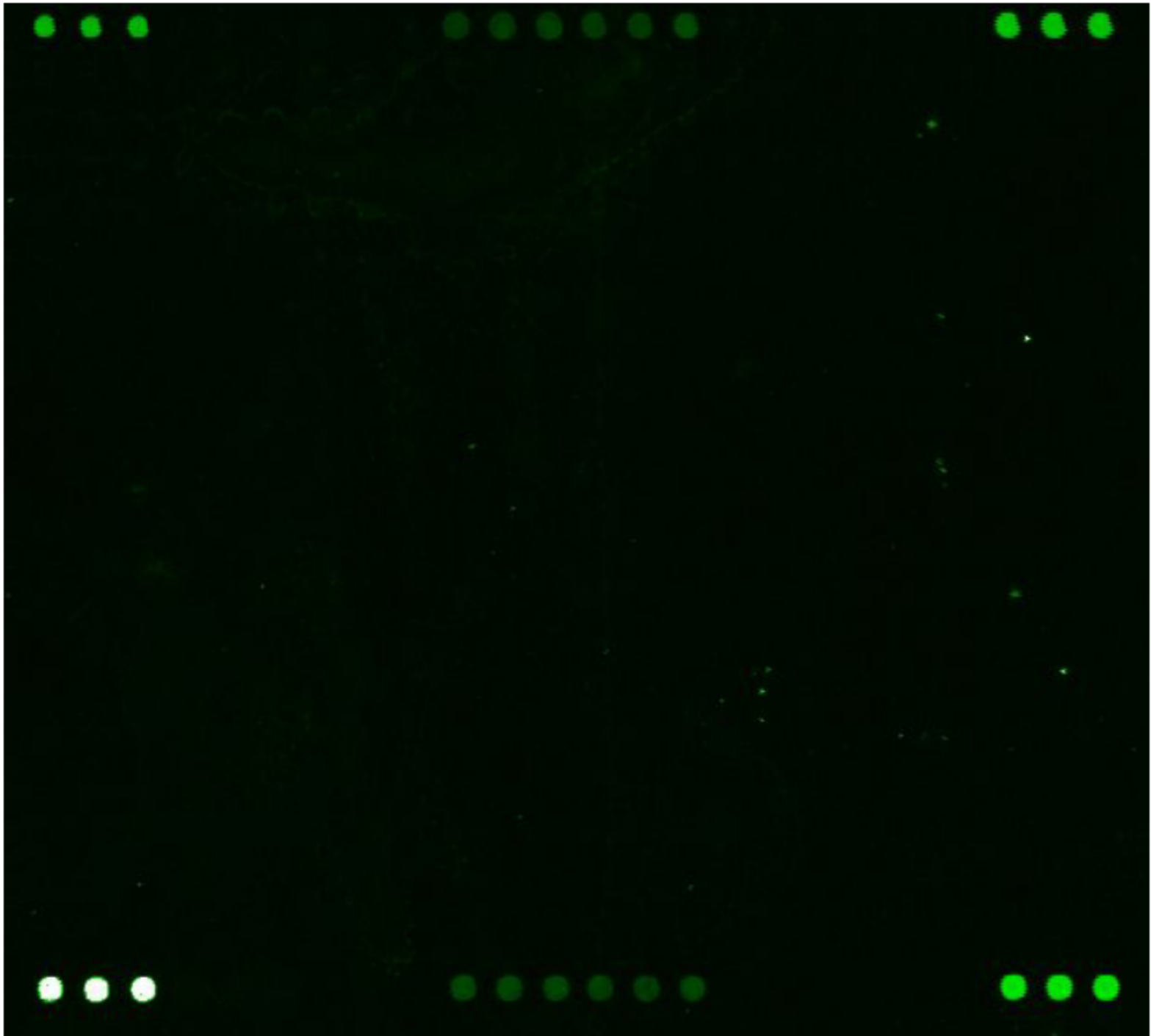
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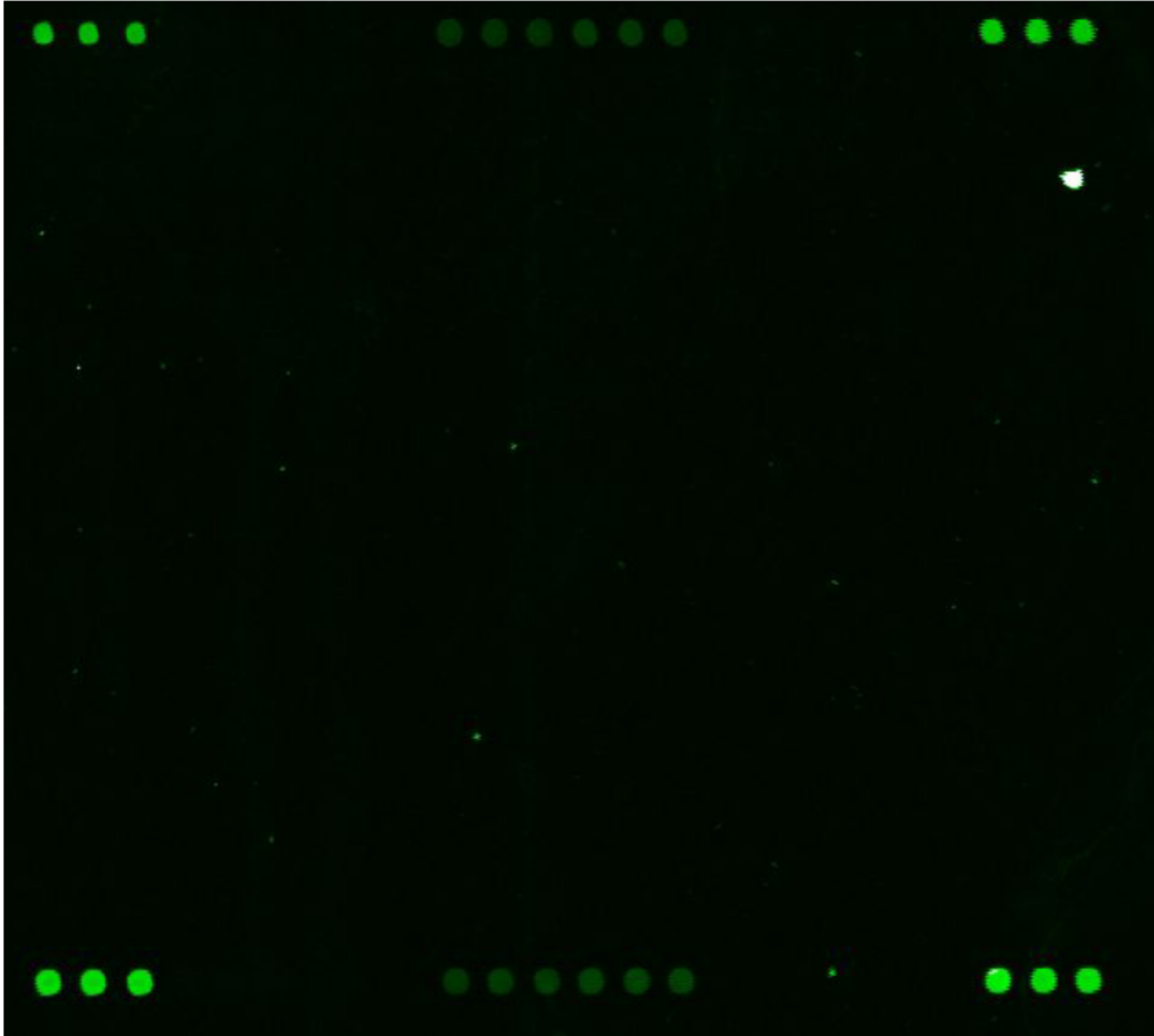
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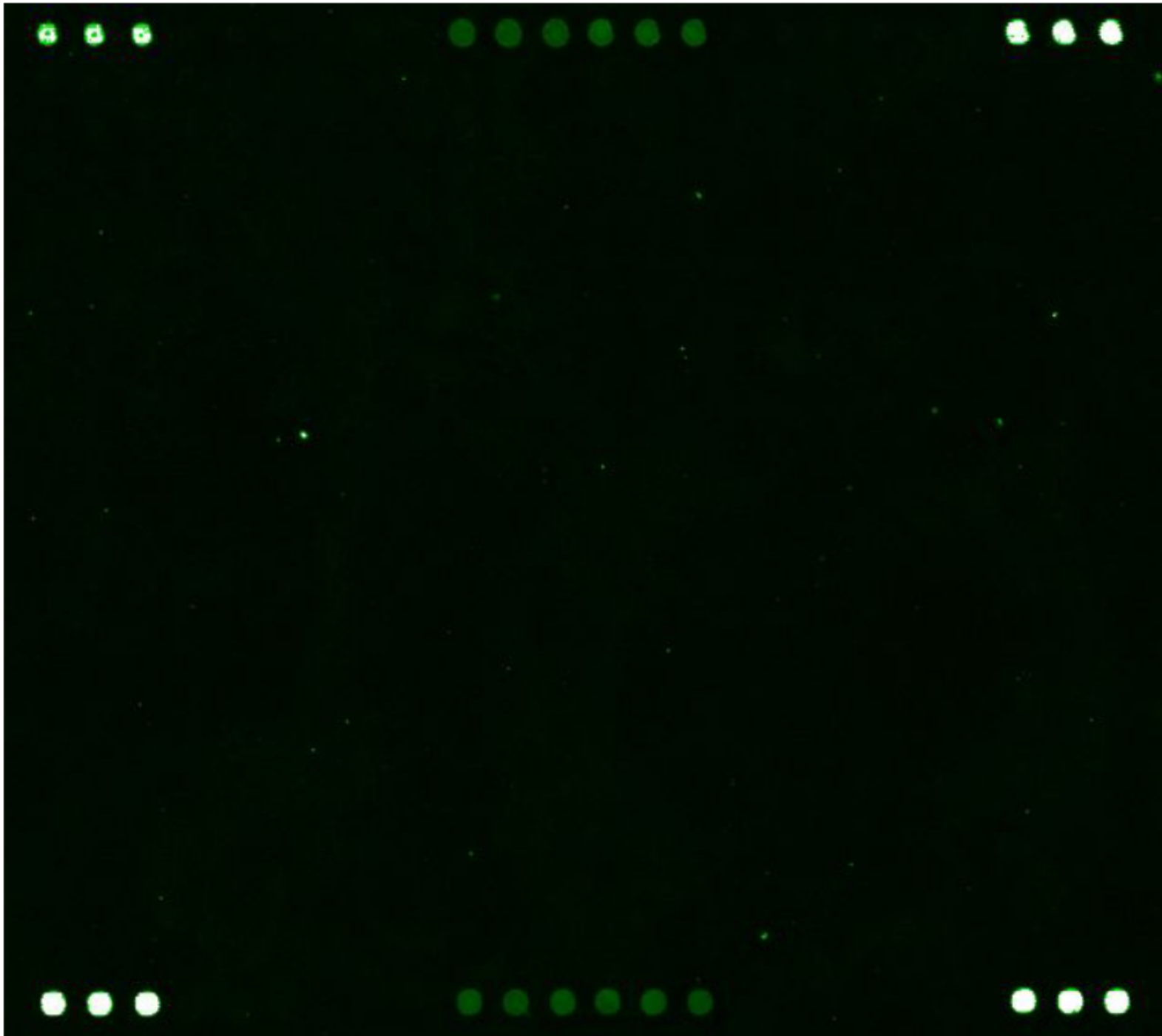
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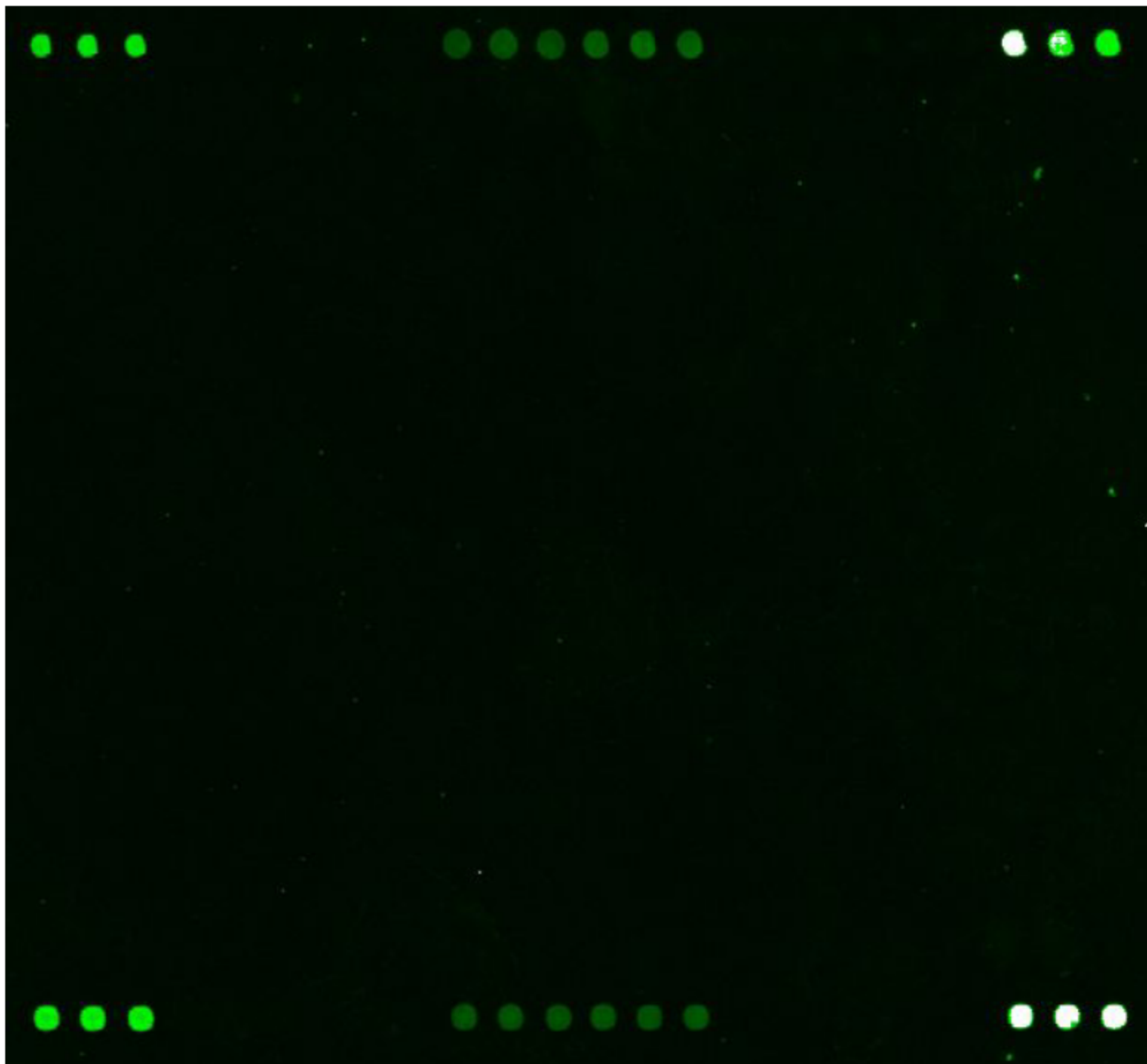
NC Specimen 8



NC Specimen 9



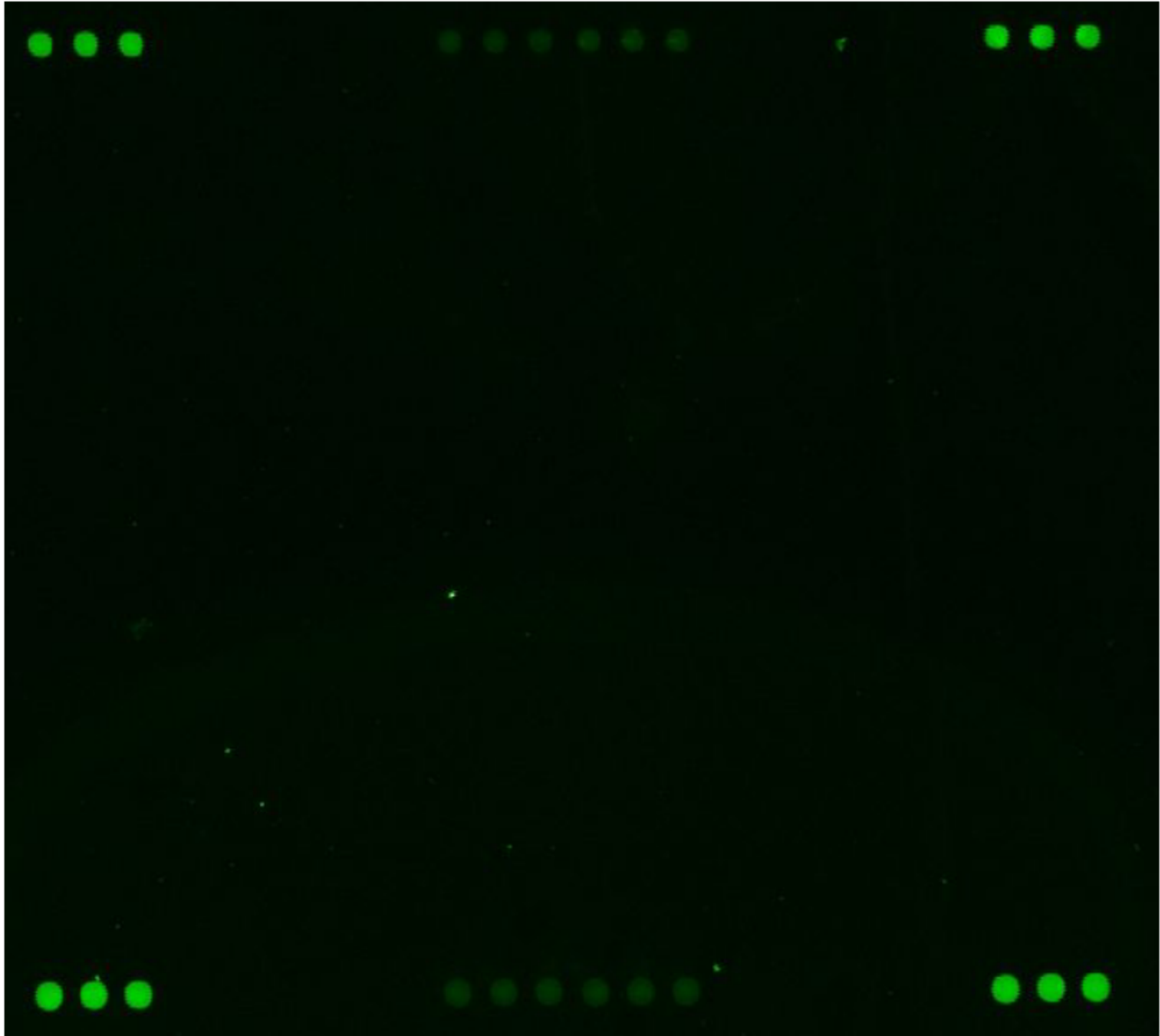
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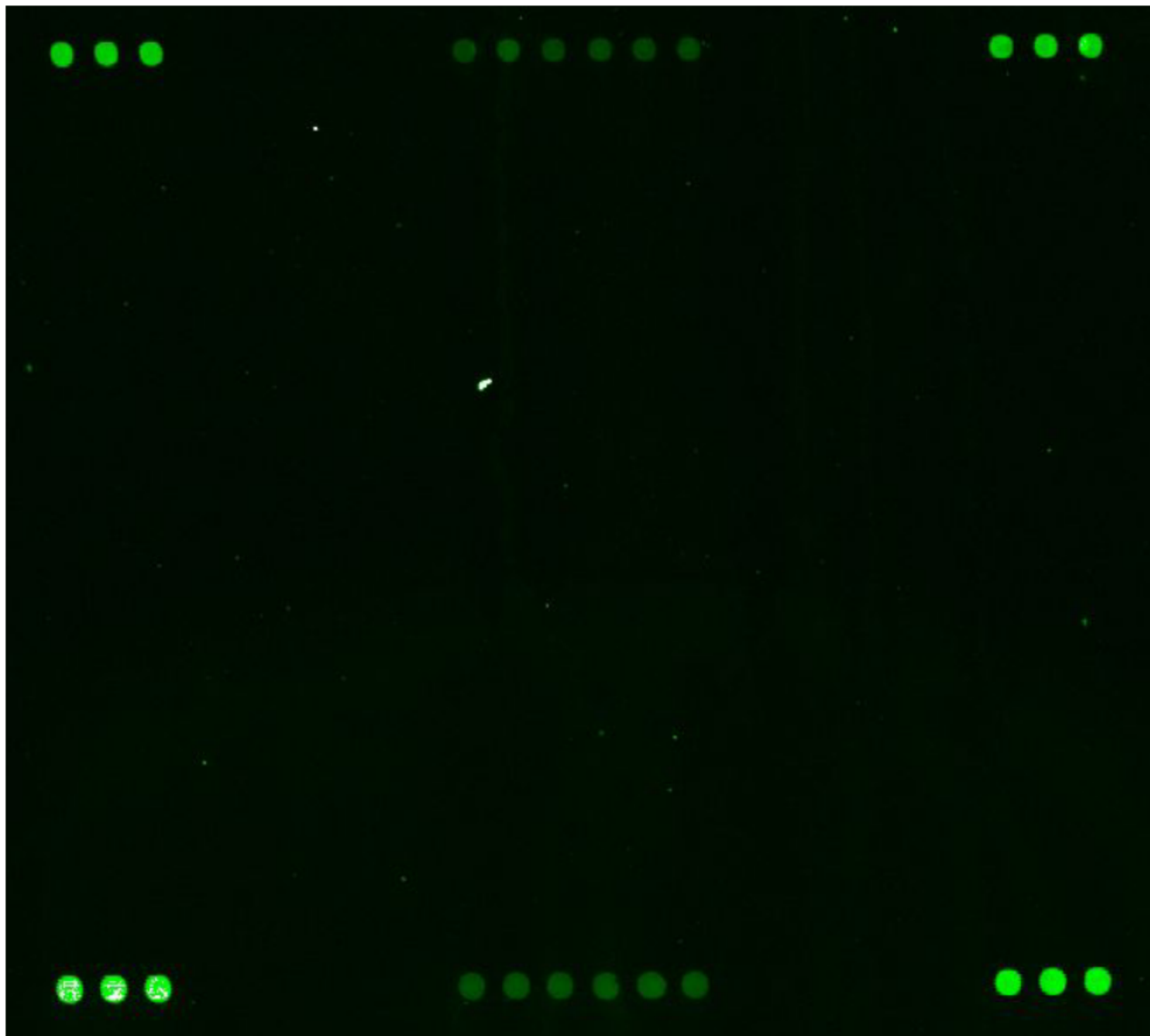
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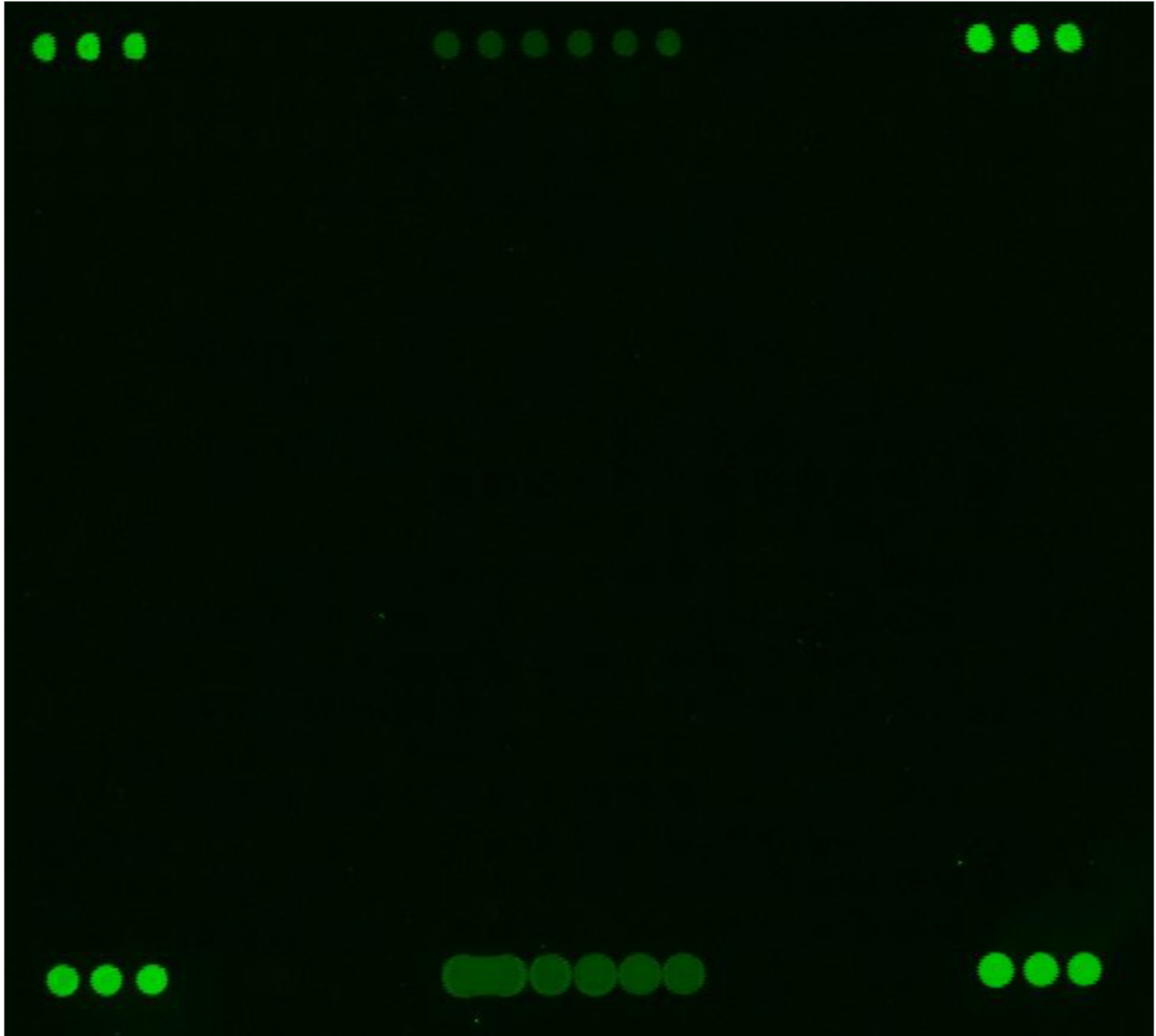
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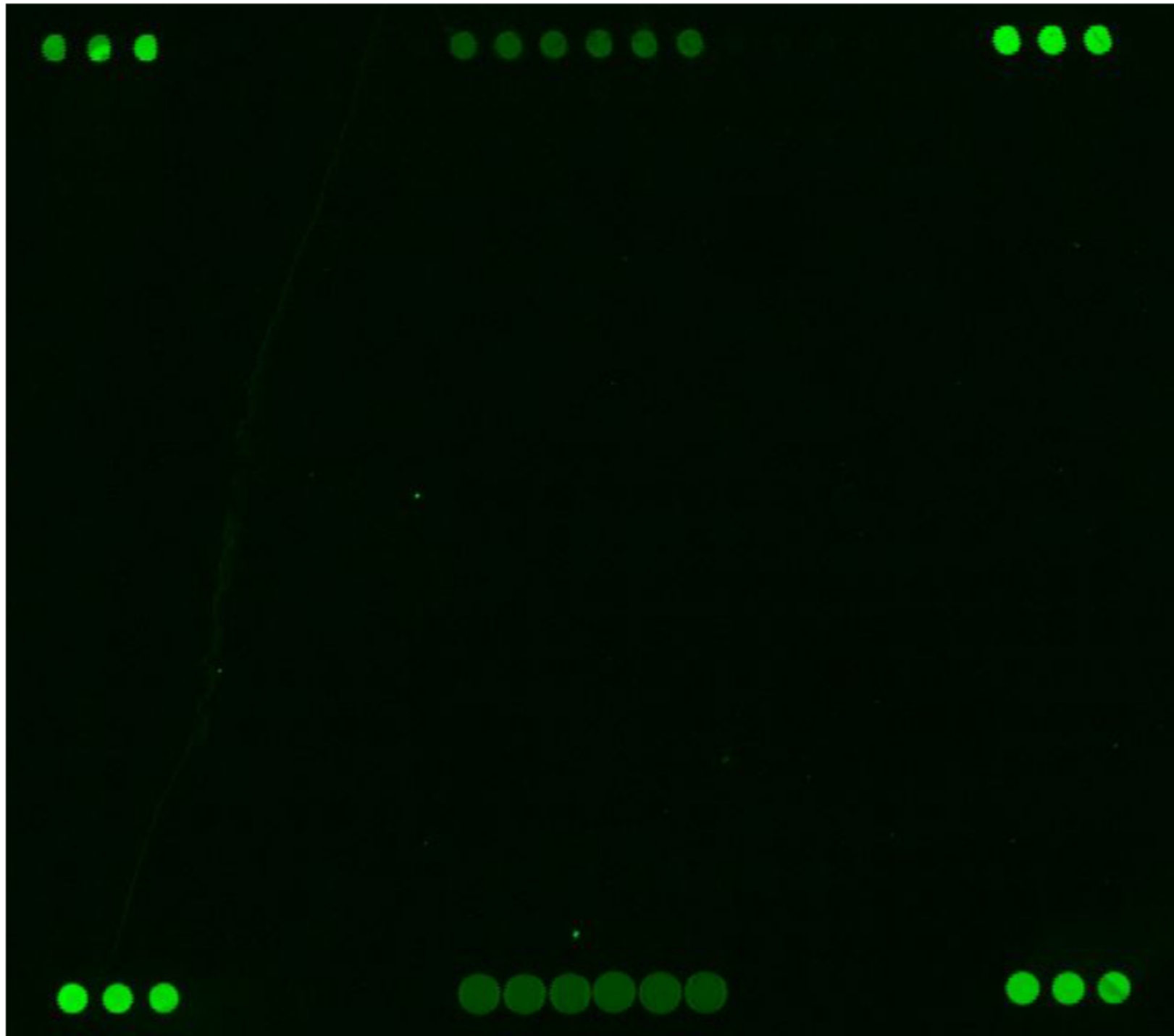




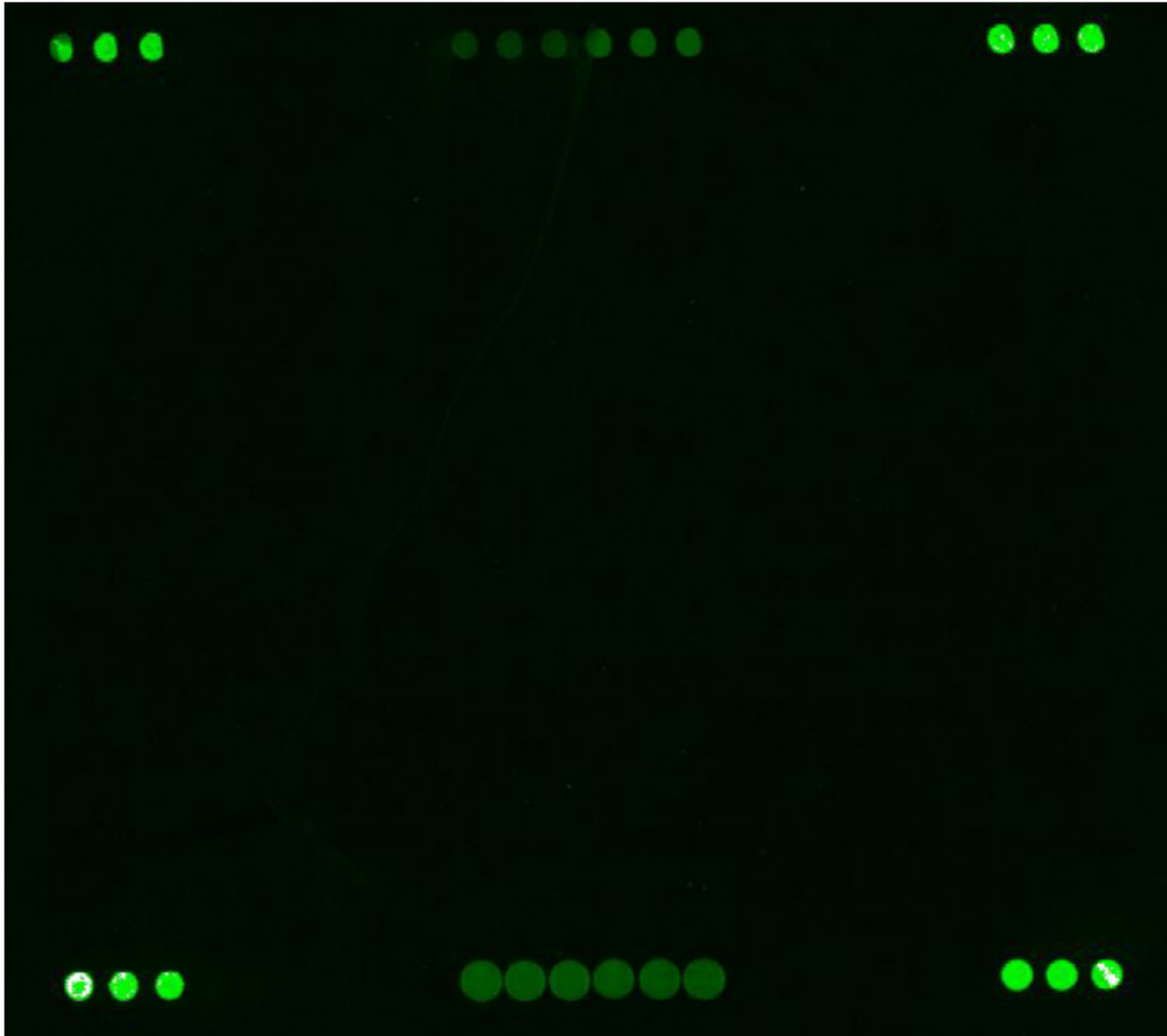
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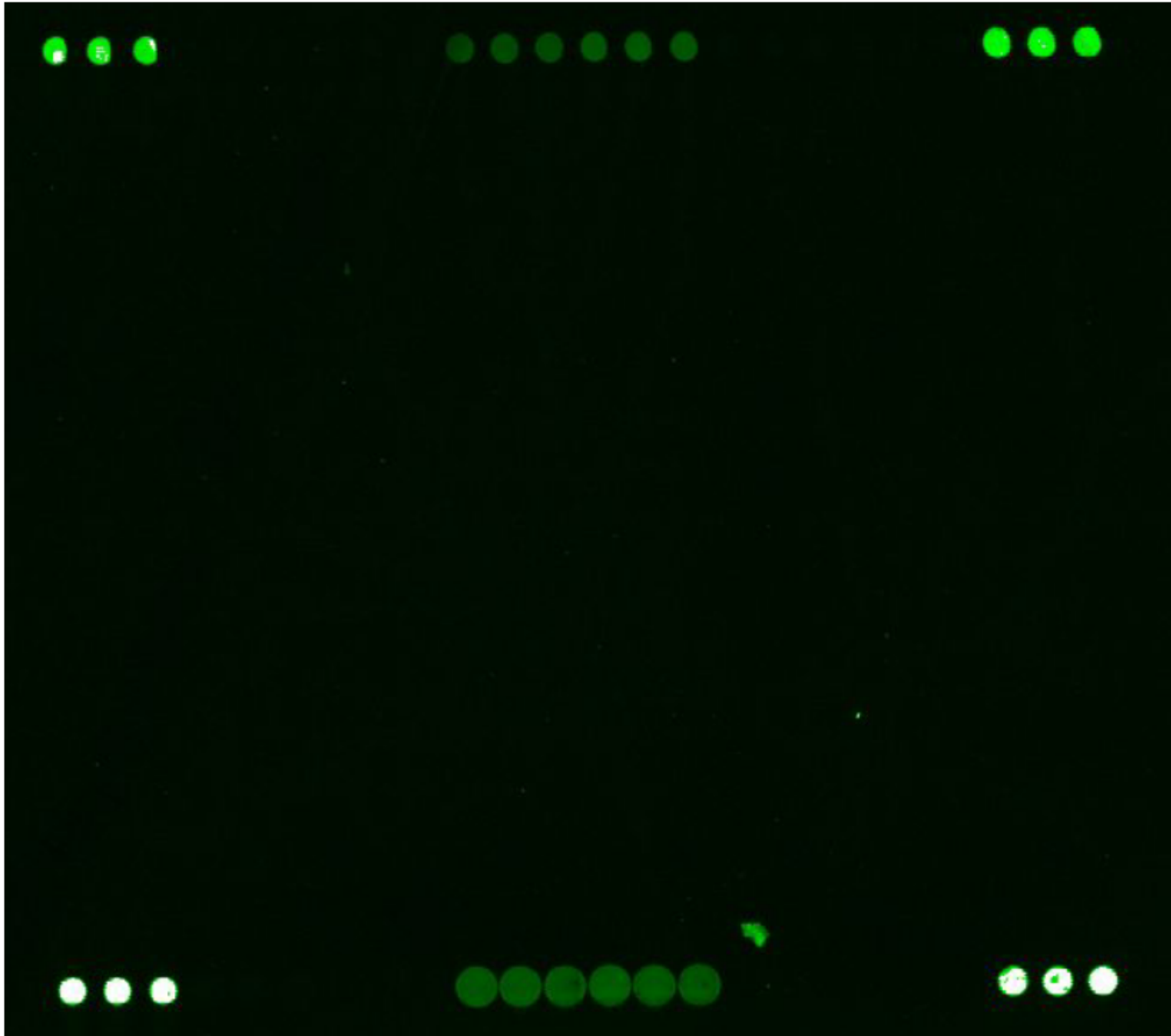
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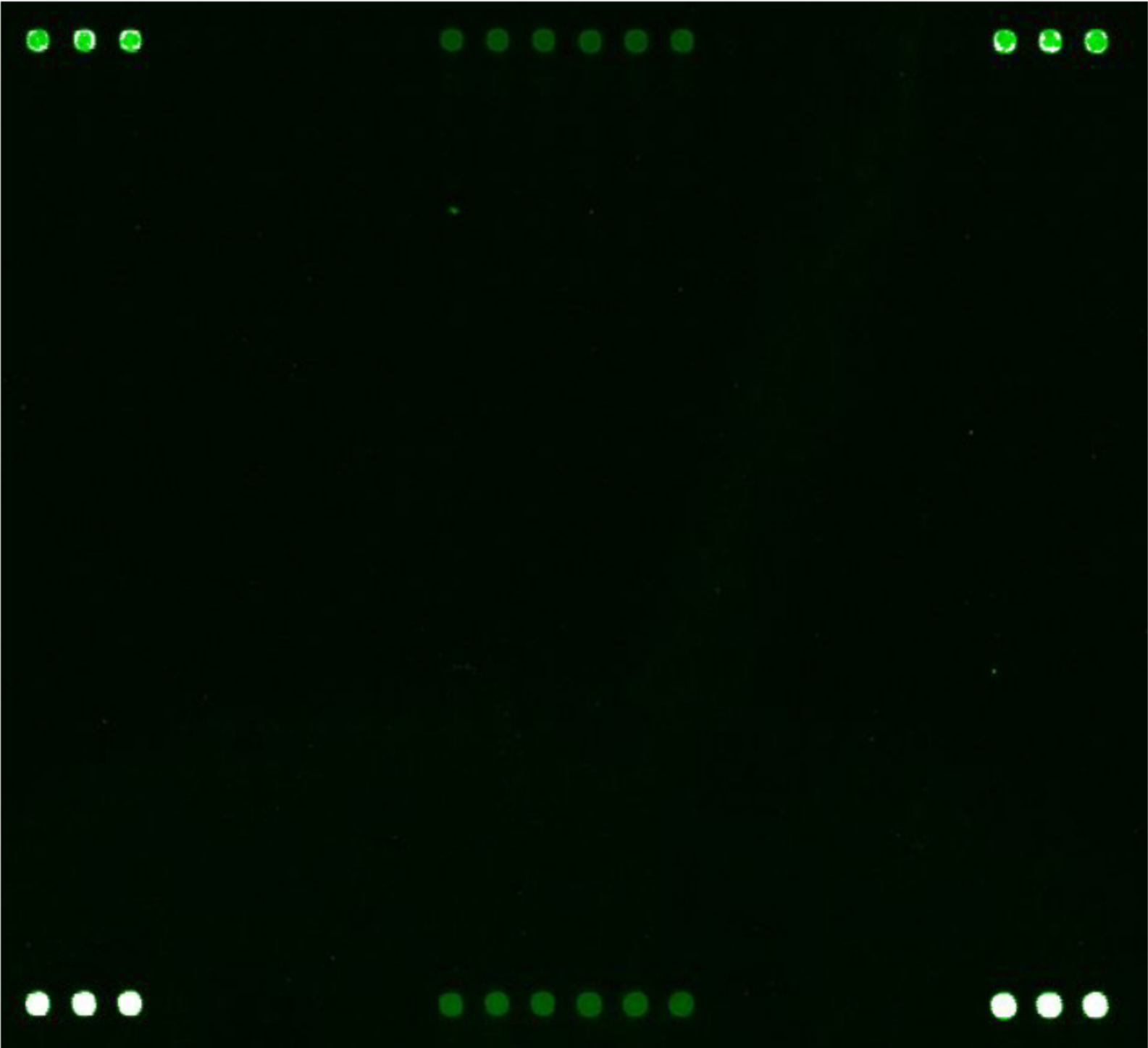


NC Specimen 17

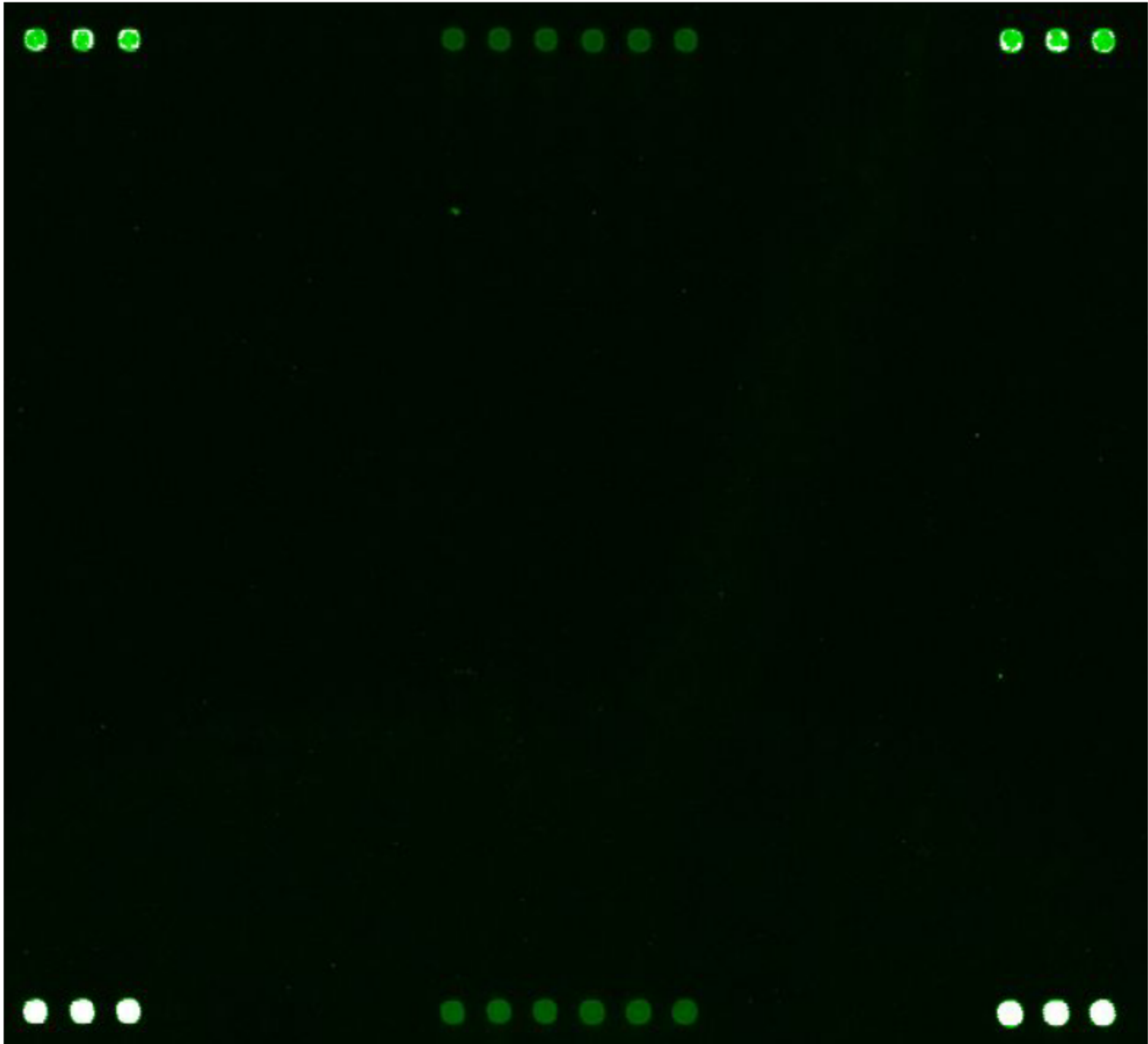


NC Specimen 18





NC Specimen 20



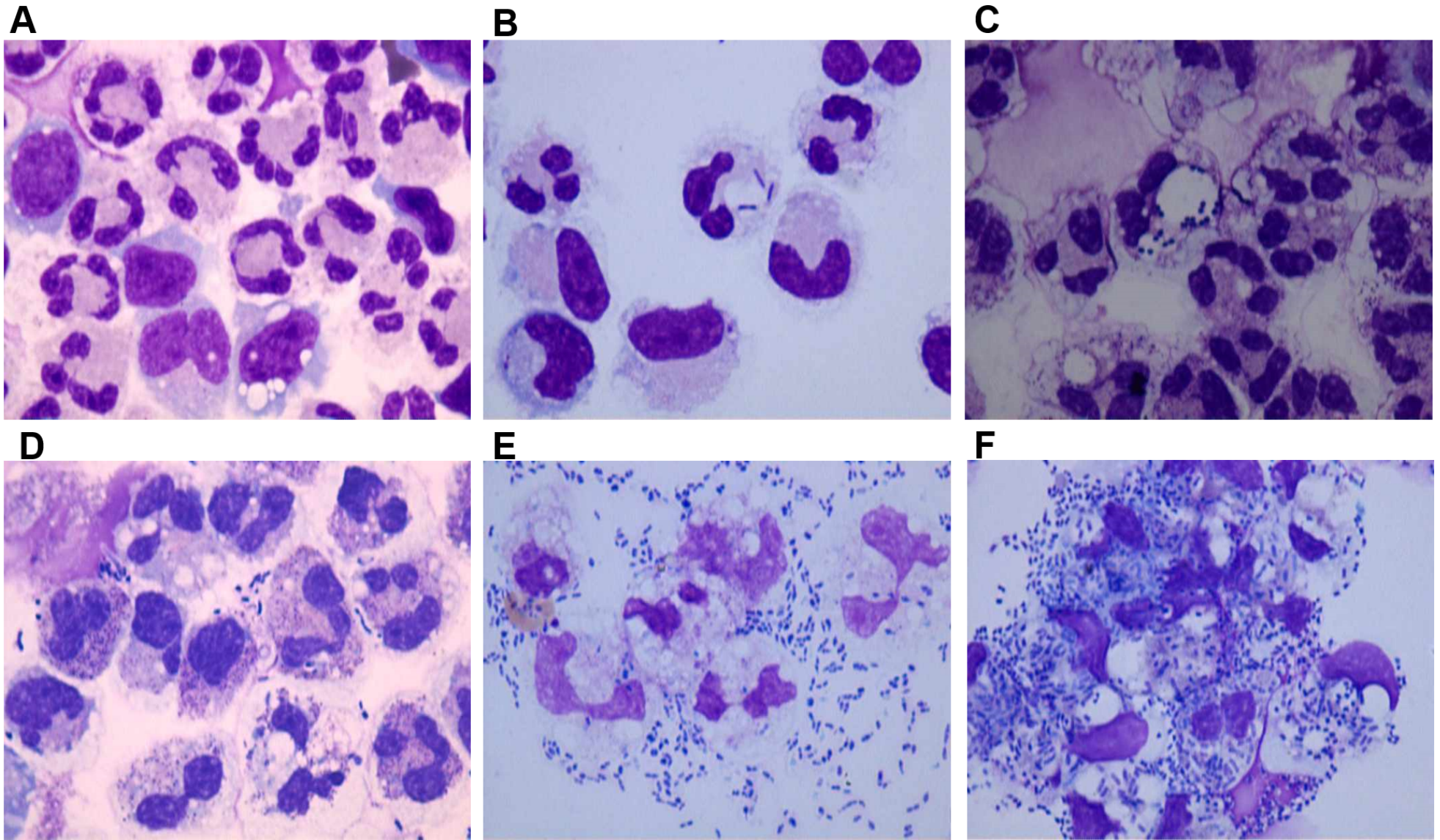


Figure S1. Cytological examination of CSF (1000 \times) A. Negative of infection; B. Neutrophils with intracellular bacterial infection(Bacillus) ;C. Neutrophils with intracellular bacterial infection(Coccus); D. Extracellular bacterial infection(Bacillus) ; E. Extracellular bacterial infection(Coccus); F. Extracellular and intracellular bacterial infection

Figure S2 Negative control specimens` microarray analysis results

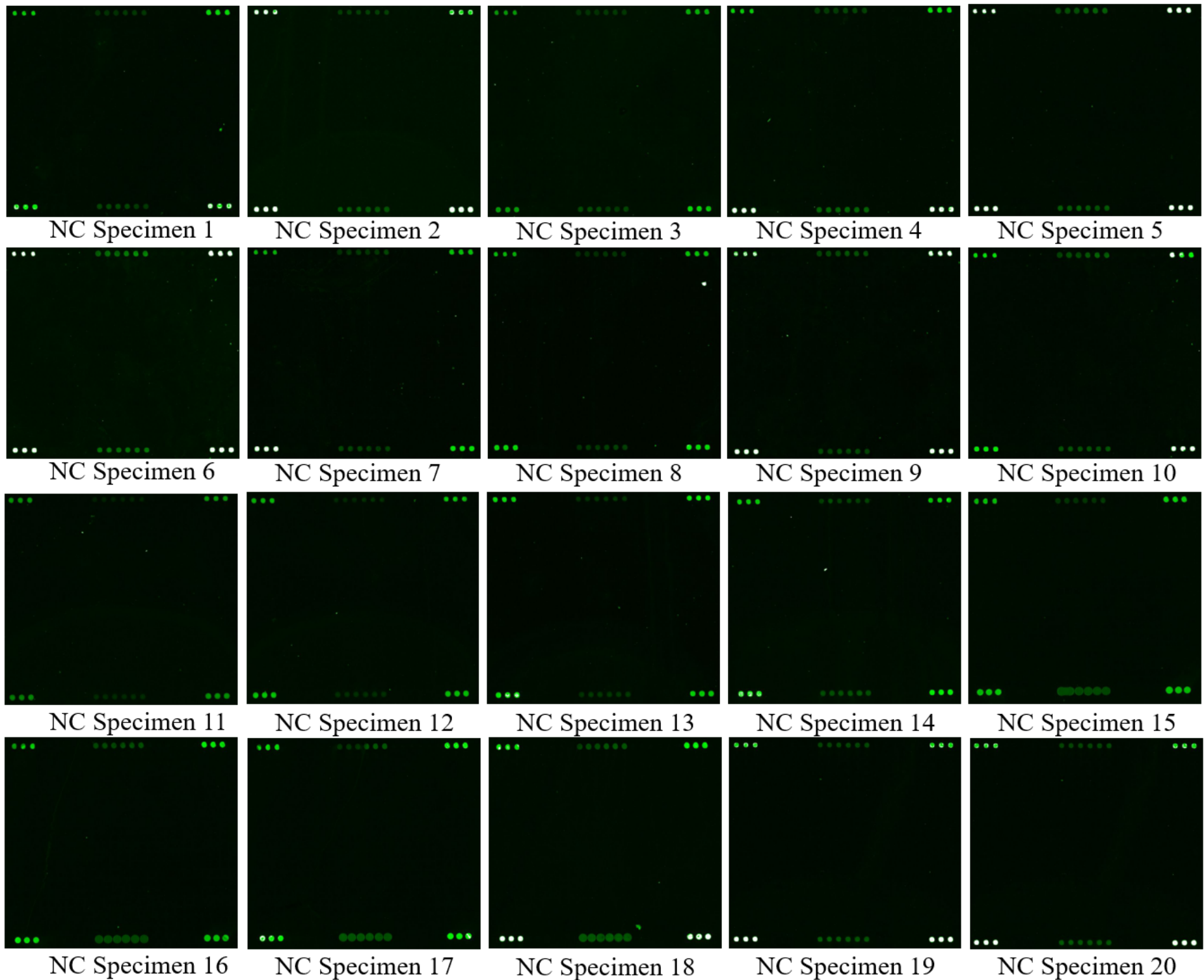


Table S1. The results of negative control specimens` CSF culture testing, related clinical testing

Sample ID	Age/sex (years)	Symptom	The chemical analysis of CSF			CSF cytology examination				Bacteria	The results of CSF culture testing	The results of CSF microarray analysis	Diagnosis
			Pro (g/L)	Glu (mmol/L)	Cl (mmol/L)	WBC (/mm ³)	L (%)	M (%)	N (%)				
NC Specimen 1	45/F	Bladder difficulties, Limbs numbness	0.63	3.0	123	27	92	6	4	NO	Negative	Negative	Neuromyelitis optica
NC Specimen 2	32/M	Limbs numbness	0.39	2.7	128	2	-	-	-	NO	Negative	Negative	Neuromyelitis optica
NC Specimen 3	16/F	Headache, Tic	0.41	3.2	125	37	91	6	3	NO	Negative	Negative	Anti-NMDA receptor encephalitis
NC Specimen 4	23/M	Headache, Tic, Unconsciousness	0.41	2.9	121	22	90	4	6	NO	Negative	Negative	Anti-NMDA receptor encephalitis
NC Specimen 5	63/M	Fever Unconsciousness	0.66	3.4	117	315	38	21	41	NO	Negative	Negative	Epidemic encephalitis B
NC Specimen 6	49/M	Fever, Headache,	0.89	2.7	121	25	99	1	-	NO	Negative	Negative	Epidemic encephalitis B
NC Specimen 7	82/M	Aphasia	0.90	4.0	115	70	80	18	2	NO	Negative	Negative	Cerebral infarction
NC Specimen 8	52/F	Headache,	0.33	2.7	126	7	-	-	-	NO	Negative	Negative	Cerebral infarction
NC Specimen 9	48/M	Headache, Limbs weakness	0.77	3.1	125	10	89	11	-	NO	Negative	Negative	Cerebral infarction
NC Specimen 10	31/F	Weakness of the muscles of the face, Limbs numbness	4.53	2.6	119	10	65	33	2	NO	Negative	Negative	Guillain-barre syndrome
NC Specimen 11	67/M	Problems with speech, Unconsciousness	0.78	3.4	114	162	81	17	2	NO	Negative	Negative	Guillain-barre syndrome
NC Specimen 12	32/F	Limbs numbness	0.44	3.1	120	5	-	-	-	NO	Negative	Negative	Multiple sclerosis
NC Specimen 13	30/F	Blurred vision, Limbs numbness	0.43	4.9	124	12	97	3	-	NO	Negative	Negative	Multiple sclerosis

NC Specimen 14	24/F	Headache	0.88	1.7	121	67	96	4	-	NO	Negative	Negative	Viral meningitis
NC Specimen 15	34/F	Headache	1.01	2.3	125	222	97	3	-	NO	Negative	Negative	Viral meningitis
NC Specimen 16	34/F	Headache, Fever	0.56	1.9	124	127	88	12	-	NO	Negative	Negative	Viral meningitis
NC Specimen 17	29/M	Headache	0.98	2.5	122	177	92	8	-	NO	Negative	Negative	Viral meningitis
NC Specimen 18	8/M	Headache, Anemia	-	-	-	2	-	-	-	NO	Negative	Negative	Acute lymphoblastic leukemia
NC Specimen 19	62/M	Fever, Feeling tired	0.66	2.9	122	10	25	3	69	NO	Negative	Negative	Central nervous system leukemia
NC Specimen 20	19/M	Blurred vision	0.49	2.5	122	87	-	-	-	NO	Negative	Negative	Central nervous system leukemia

Notes: CSF-cerebrospinal fluid; Pro-protein contents of cerebrospinal fluid; Glu-glucose contents of cerebrospinal fluid; Cl-chloride contents of cerebrospinal fluid; WBC-white blood cells of cerebrospinal fluid; L-lymphocyte count of cerebrospinal fluid; M-monocyte count of cerebrospinal fluid; N-neutrophils count of cerebrospinal fluid.

