记录编号	实验日期	包装批次号	载体编号	质粒抽提批号	质粒浓度(ng/μL)	质粒核酸蛋白吸光度比	质粒核酸盐类吸光度比	质粒得率(μg)	转化质粒体积(μL)	摇菌时长(h)	凝胶电泳上样量(ng)	电泳条带评分(分)	培养皿数量(个)	转染时细胞汇合度(%)	目的质粒用量(μg)	包装质粒用量(μg)	包膜质粒用量(μg)	转染试剂体积(μL)	复合静置时间(min)	转染时长(h)	收毒时点(h)	换液后培养基体积(mL)	病毒液体积(mL)	病毒滴度(TU/mL)	研究员编号	平行批次滴度均值(TU/mL)	平行批次滴度变异系数(%)	滴度相对平行批均值偏差(%)	质粒质量评分	包装工艺综合评分
REC00014	2025-09-07	PKG00014	pLKO.1-puro-shCD147	PL20250907-02	266	1.885	2.021	13.3	0.5	12	300	4.7	1	90	4	3.5	0.5	8	20	4	60	10	10	155900000	RES_03	156250000	7.03	-0.22	74.28	70.35
REC00023	2025-09-11	PKG00023	pLKO.1-puro-shCD147	PL20250911-03	254.7	1.863	1.851	12.7	0.5	16	200	4.7	1	85	4	3.5	0.5	8	30	4	84	10	10	90500000	RES_02	90575000	1.27	-0.08	65.46	58.2
REC00032	2025-09-15	PKG00032	pLKO.1-puro-shNC	PL20250915-04	262.4	1.864	1.981	13.1	0.5	12	100	4.8	1	80	4	3.5	0.5	8	20	6	36	10	10	114600000	RES_03	118175000	4.14	-3.03	83	66.46
REC00041	2025-09-21	PKG00041	pLKO.1-puro-shNC	PL20250921-01	252.5	1.831	1.933	12.6	1	16	100	4.8	1	90	4	3.5	0.5	8	20	6	72	10	10	134300000	RES_01	136325000	2.57	-1.49	73.26	66.22
REC00050	2025-09-25	PKG00050	pLKO.1-puro-shCD147	PL20250925-02	249.3	1.803	2.152	12.5	0.5	12	300	4.6	1	80	4	3.5	0.5	12	20	4	24	10	10	86300000	RES_02	79275000	6.62	8.86	49.62	45.45
REC00059	2025-09-29	PKG00059	pLKO.1-puro-shCD147	PL20250929-03	249.7	1.783	2.105	12.5	0.5	12	300	4.8	1	80	4	3.5	0.5	12	30	6	48	10	10	219800000	RES_02	225225000	1.77	-2.41	48.94	67.28
REC00068	2025-10-03	PKG00068	pLKO.1-puro-shCD147	PL20251003-04	266.5	1.869	2.135	13.3	0.5	12	100	4.1	1	85	4	3.5	0.5	12	20	4	72	10	10	153900000	RES_03	158225000	3.96	-2.73	62.3	63.62
REC00077	2025-10-09	PKG00077	pLKO.1-puro-shNC	PL20251009-01	260.4	1.887	2.018	13	0.5	12	200	5	1	80	4	3.5	0.5	12	30	4	36	10	10	148400000	RES_01	149550000	2.18	-0.77	75.12	69.32
REC00086	2025-10-13	PKG00086	pLKO.1-puro-shNC	PL20251013-02	274.2	1.867	1.985	13.7	1	14	300	4.1	1	80	4	3.5	0.5	12	20	6	60	10	10	193600000	RES_03	200250000	2.61	-3.32	79.04	75.22
REC00095	2025-10-17	PKG00095	pLKO.1-puro-shNC	PL20251017-03	261.5	1.819	1.964	13.1	0.5	12	300	4.8	1	80	4	3.5	0.5	12	30	6	84	10	10	105700000	RES_01	110025000	4.94	-3.93	73.98	61.07
REC00104	2025-10-21	PKG00104	pLKO.1-puro-shCD147	PL20251021-04	229.9	1.847	2.003	11.5	1	16	200	4.2	1	80	4	3.5	0.5	16	30	4	36	10	10	158500000	RES_03	157700000	5.06	0.51	78.02	72
REC00113	2025-10-27	PKG00113	pLKO.1-puro-shCD147	PL20251027-01	270.7	1.882	1.91	13.5	1	16	100	4.6	1	90	4	3.5	0.5	16	20	6	72	10	10	181200000	RES_02	180375000	1.87	0.46	67.34	70.79
REC00122	2025-10-31	PKG00122	pLKO.1-puro-shNC	PL20251031-02	258	1.846	1.88	12.9	1	12	100	4.3	1	85	4	3.5	0.5	16	20	6	24	10	10	84700000	RES_01	85325000	2.35	-0.73	70	58.81
REC00131	2025-11-04	PKG00131	pLKO.1-puro-shNC	PL20251104-03	236.4	1.821	1.921	11.8	1	14	100	4.4	1	80	4	3.5	0.5	16	30	4	48	10	10	241000000	RES_03	247875000	2.66	-2.77	61.4	74.85
REC00140	2025-11-08	PKG00140	pLKO.1-puro-shNC	PL20251108-04	278.5	1.809	1.897	13.9	0.5	16	300	4.8	1	85	4	3.5	0.5	16	30	4	72	10	10	169700000	RES_04	174700000	3.53	-2.86	65.34	66.86
REC00149	2025-11-14	PKG00149	pLKO.1-puro-shCD147	PL20251114-01	262.4	1.87	2.018	13.1	0.5	12	100	4.4	1	85	4	3.5	0.5	24	20	6	36	10	10	133800000	RES_04	130200000	1.96	2.76	77.52	67.01
REC00158	2025-11-18	PKG00158	pLKO.1-puro-shCD147	PL20251118-02	264.5	1.865	1.903	13.2	0.5	16	300	4.5	1	90	4	3.5	0.5	24	20	6	60	10	10	167800000	RES_04	179850000	6.49	-6.7	71.26	66.41
REC00167	2025-11-22	PKG00167	pLKO.1-puro-shCD147	PL20251122-03	259.5	1.819	1.903	13	0.5	14	100	4.4	1	80	4	3.5	0.5	24	20	6	84	10	10	93000000	RES_01	99925000	4.68	-6.93	63.06	53
REC00176	2025-11-26	PKG00176	pLKO.1-puro-shNC	PL20251126-04	264.3	1.834	1.935	13.2	1	16	100	4.5	1	85	4	3.5	0.5	24	30	4	36	10	10	126100000	RES_01	130325000	2.25	-3.24	74.66	64.52
REC00185	2025-12-02	PKG00185	pLKO.1-puro-shNC	PL20251202-01	281.7	1.893	2.18	14.1	1	14	200	4.6	1	80	4	3.5	0.5	24	30	4	72	10	10	148900000	RES_02	152600000	2.26	-2.42	54.34	59.98
REC00194	2025-12-06	PKG00194	pLKO.1-puro-shCD147	PL20251206-02	270.9	1.815	1.993	13.5	1	12	200	4.2	2	85	8	7	1	16	20	4	24	20	20	55100000	RES_03	60500000	6.05	-8.93	72.94	50.57
REC00203	2025-12-10	PKG00203	pLKO.1-puro-shCD147	PL20251210-03	246	1.837	1.958	12.3	1	16	100	4.9	2	85	8	7	1	16	30	6	48	20	20	171100000	RES_03	177850000	5.53	-3.8	78.16	71.54
REC00212	2025-12-14	PKG00212	pLKO.1-puro-shCD147	PL20251214-04	282.4	1.853	2.011	14.1	0.5	16	300	4.6	2	85	8	7	1	16	30	4	72	20	20	137700000	RES_03	125700000	6.76	9.55	90.76	68.3
REC00221	2025-12-20	PKG00221	pLKO.1-puro-shNC	PL20251220-01	267.6	1.884	1.955	13.4	1	14	200	4.8	2	90	8	7	1	16	30	4	36	20	20	114400000	RES_02	112600000	2.17	1.6	72.92	63.35
REC00230	2025-12-24	PKG00230	pLKO.1-puro-shNC	PL20251224-02	264.9	1.854	2.131	13.2	0.5	14	300	4.2	2	85	8	7	1	16	30	4	60	20	20	151800000	RES_02	157100000	4.66	-3.37	69.26	65.7
REC00239	2025-12-28	PKG00239	pLKO.1-puro-shNC	PL20251228-03	253	1.86	2.054	12.7	0.5	14	200	4.8	2	90	8	7	1	16	20	4	84	20	20	94500000	RES_01	89750000	4.42	5.29	78.52	60.48
REC00248	2026-01-01	PKG00248	pLKO.1-puro-shCD147	PL20260101-04	251.5	1.851	1.978	12.6	0.5	14	300	4.2	2	85	8	7	1	24	20	6	36	20	20	135900000	RES_01	141575000	2.74	-4.01	80.86	67.79
REC00257	2026-01-07	PKG00257	pLKO.1-puro-shCD147	PL20260107-01	273.9	1.873	1.98	13.7	0.5	12	300	4.8	2	90	8	7	1	24	30	6	72	20	20	161700000	RES_01	151225000	4.84	6.93	81.58	69.57
REC00266	2026-01-11	PKG00266	pLKO.1-puro-shNC	PL20260111-02	279.1	1.812	1.956	14	1	14	200	4.8	2	90	8	7	1	24	30	4	24	20	20	79500000	RES_03	76675000	8.19	3.68	73.74	57.64
REC00275	2026-01-15	PKG00275	pLKO.1-puro-shNC	PL20260115-03	296.2	1.861	2.11	14.8	1	12	100	4.4	2	90	8	7	1	24	20	6	48	20	20	231100000	RES_03	225825000	7.05	2.34	76.84	79.99
REC00284	2026-01-19	PKG00284	pLKO.1-puro-shNC	PL20260119-04	235.4	1.858	1.928	11.8	1	14	300	4.3	2	85	8	7	1	24	20	4	72	20	20	168200000	RES_01	162700000	3.07	3.38	69.64	68.03
REC00293	2026-01-25	PKG00293	pLKO.1-puro-shCD147	PL20260125-01	299	1.838	1.985	15	0.5	14	100	4	2	85	8	7	1	32	20	6	36	20	20	152100000	RES_04	151825000	1.03	0.18	85.2	74.24
REC00302	2026-01-28	PKG00302	pLKO.1-puro-shCD147	PL20260128-06	274.3	1.887	1.956	13.7	1	12	100	4.4	2	80	8	7	1	32	20	6	48	20	20	238800000	RES_01	239987500	2.46	-0.49	69.98	79.51
REC00311	2026-01-31	PKG00311	pLKO.1-puro-shCD147	PL20260131-03	258.2	1.844	1.922	12.9	0.5	16	200	4.4	2	90	8	7	1	32	20	6	72	20	20	167800000	RES_01	171375000	4.29	-2.09	75.08	71.01
REC00320	2026-02-04	PKG00320	pLKO.1-puro-shNC	PL20260204-04	277.3	1.871	1.908	13.9	1	16	100	5	2	80	8	7	1	32	20	6	24	20	20	85700000	RES_02	83875000	2.82	2.18	76.02	60.38
REC00329	2026-02-09	PKG00329	pLKO.1-puro-shNC	PL20260209-05	276.6	1.838	1.967	13.8	1	14	200	4.3	2	85	8	7	1	32	20	4	48	20	20	247200000	RES_04	241975000	6.8	2.16	80.96	83.9
REC00338	2026-02-12	PKG00338	pLKO.1-puro-shNC	PL20260212-02	258.6	1.835	1.831	12.9	1	14	300	4.1	2	90	8	7	1	32	20	6	72	20	20	177300000	RES_04	179175000	4.4	-1.05	58.24	66.24
REC00347	2026-02-16	PKG00347	pLKO.1-puro-shCD147	PL20260216-03	274.9	1.843	1.997	13.7	1	14	300	4.7	2	90	8	7	1	48	30	6	24	20	20	67200000	RES_04	68800000	3.85	-2.33	89.42	63.17
REC00356	2026-02-20	PKG00356	pLKO.1-puro-shCD147	PL20260220-04	291.7	1.853	2.172	14.6	1	12	300	5	2	80	8	7	1	48	30	4	48	20	20	199500000	RES_03	203200000	4.3	-1.82	76.5	75.99
REC00365	2026-02-26	PKG00365	pLKO.1-puro-shCD147	PL20260226-01	263.9	1.841	1.917	13.2	0.5	14	200	4.5	2	80	8	7	1	48	30	6	84	20	20	91500000	RES_03	97850000	5.04	-6.49	75.22	57.96
REC00374	2026-03-02	PKG00374	pLKO.1-puro-shNC	PL20260302-02	290.1	1.879	2.039	14.5	0.5	14	300	4.9	2	85	8	7	1	48	20	4	36	20	20	136600000	RES_02	130725000	7.21	4.49	80.94	67.6
REC00383	2026-03-06	PKG00383	pLKO.1-puro-shNC	PL20260306-03	270.2	1.847	1.919	13.5	0.5	16	200	4.5	2	90	8	7	1	48	20	6	60	20	20	189300000	RES_01	184650000	3.92	2.52	79.12	75.21
REC00392	2026-03-10	PKG00392	pLKO.1-puro-shNC	PL20260310-04	246.8	1.855	1.8	12.3	1	14	300	4.9	2	80	8	7	1	48	20	4	84	20	20	100300000	RES_03	105100000	4.62	-4.57	62.56	55.35

记录编号	实验日期	包装批次号	载体编号	质粒抽提批号	质粒浓度(ng/μL)	质粒核酸蛋白吸光度比	质粒核酸盐类吸光度比	质粒得率(μg)	转化质粒体积(μL)	摇菌时长(h)	凝胶电泳上样量(ng)	电泳条带评分(分)	培养皿数量(个)	转染时细胞汇合度(%)	目的质粒用量(μg)	包装质粒用量(μg)	包膜质粒用量(μg)	转染试剂体积(μL)	复合静置时间(min)	转染时长(h)	收毒时点(h)	换液后培养基体积(mL)	病毒液体积(mL)	病毒滴度(TU/mL)	研究员编号	平行批次滴度均值(TU/mL)	平行批次滴度变异系数(%)	滴度相对平行批均值偏差(%)	质粒质量评分	包装工艺综合评分
REC00401	2026-03-16	PKG00401	pLKO.1-puro-shCD147	PL20260316-01	255.2	1.857	2.123	12.8	1	14	300	4.2	3	85	12	10.5	1.5	24	20	6	48	30	30	163200000	RES_03	172850000	5.82	-5.58	67.08	64.87
REC00410	2026-03-20	PKG00410	pLKO.1-puro-shCD147	PL20260320-02	259.8	1.84	2.012	13	0.5	16	300	4	3	80	12	10.5	1.5	24	20	4	72	30	30	118000000	RES_04	121025000	4.16	-2.5	78.52	65.47
REC00419	2026-03-24	PKG00419	pLKO.1-puro-shNC	PL20260324-03	279.9	1.84	1.924	14	1	12	100	4	3	85	12	10.5	1.5	24	20	4	24	30	30	63100000	RES_04	63925000	5.2	-1.29	74.86	57.5
REC00428	2026-03-28	PKG00428	pLKO.1-puro-shNC	PL20260328-04	227.9	1.833	2.018	11.4	1	16	200	4.9	3	85	12	10.5	1.5	24	30	6	48	30	30	173100000	RES_02	175600000	2.7	-1.42	75.82	72.46
REC00437	2026-04-03	PKG00437	pLKO.1-puro-shNC	PL20260403-01	267.1	1.834	2.064	13.4	1	16	200	4.6	3	90	12	10.5	1.5	24	20	4	84	30	30	89100000	RES_02	85325000	4.71	4.42	76.14	59.39
REC00446	2026-04-07	PKG00446	pLKO.1-puro-shCD147	PL20260407-02	288.9	1.839	2.079	14.4	0.5	12	300	4.3	3	90	12	10.5	1.5	36	30	4	36	30	30	139300000	RES_01	130900000	5.93	6.42	78.3	65.61
REC00455	2026-04-11	PKG00455	pLKO.1-puro-shCD147	PL20260411-03	267.5	1.872	1.943	13.4	0.5	16	100	4.7	3	85	12	10.5	1.5	36	20	4	60	30	30	183700000	RES_01	182500000	2.64	0.66	75.46	74.24
REC00464	2026-04-15	PKG00464	pLKO.1-puro-shCD147	PL20260415-04	240.7	1.832	2.064	12	1	14	300	4.6	3	85	12	10.5	1.5	36	20	4	84	30	30	106100000	RES_02	101650000	4.85	4.38	70.06	59.25
REC00473	2026-04-21	PKG00473	pLKO.1-puro-shNC	PL20260421-01	253.8	1.819	1.901	12.7	0.5	14	300	4.4	3	80	12	10.5	1.5	36	20	6	48	30	30	231900000	RES_02	226025000	3.68	2.6	61.68	73.86
REC00482	2026-04-25	PKG00482	pLKO.1-puro-shNC	PL20260425-02	297.9	1.849	1.956	14.9	0.5	14	100	4.2	3	80	12	10.5	1.5	36	20	6	72	30	30	154500000	RES_02	155525000	7.4	-0.66	87.5	75.16
REC00491	2026-04-29	PKG00491	pLKO.1-puro-shCD147	PL20260429-03	258.6	1.858	2.022	12.9	0.5	16	100	4.2	3	90	12	10.5	1.5	48	20	4	24	30	30	71100000	RES_04	74025000	4.87	-3.95	79.48	58.64
REC00500	2026-05-03	PKG00500	pLKO.1-puro-shCD147	PL20260503-04	267	1.926	1.997	13.4	0.5	12	100	5	3	80	12	10.5	1.5	48	30	6	48	30	30	244500000	RES_01	236725000	3.5	3.28	62.64	75.47
REC00509	2026-05-09	PKG00509	pLKO.1-puro-shCD147	PL20260509-01	285.8	1.84	2.014	14.3	1	12	200	4.5	3	80	12	10.5	1.5	48	20	4	84	30	30	111900000	RES_04	119125000	7.76	-6.07	87.48	65.87
REC00518	2026-05-13	PKG00518	pLKO.1-puro-shNC	PL20260513-02	249.1	1.869	2.027	12.5	0.5	16	200	4.6	3	80	12	10.5	1.5	48	30	4	36	30	30	150000000	RES_02	151350000	2.6	-0.89	75.78	69.72
REC00527	2026-05-17	PKG00527	pLKO.1-puro-shNC	PL20260517-03	256	1.851	1.978	12.8	1	12	200	4.8	3	90	12	10.5	1.5	48	30	6	60	30	30	212000000	RES_02	208300000	5.57	1.78	86.56	81.7
REC00536	2026-05-21	PKG00536	pLKO.1-puro-shNC	PL20260521-04	271.1	1.827	1.844	13.6	1	16	300	4.9	3	80	12	10.5	1.5	48	30	4	84	30	30	124500000	RES_03	115200000	6.75	8.07	65.5	57.42
REC00545	2026-05-27	PKG00545	pLKO.1-puro-shCD147	PL20260527-01	264.8	1.836	2.029	13.2	1	16	300	4.3	3	90	12	10.5	1.5	72	30	4	48	30	30	202400000	RES_01	197850000	3.04	2.3	78.28	76.77