

Performance Comparison of KETA C and C Plus

INTRODUCTION

KETA C equipped with cooling CCD (Ambient -30°C) and f1.4 prime lens is designed as a research grade for routine chemiluminescence detection. KETA C is built as the most cost worth system for common chemiluminescent signal detection, and it also can be upgraded with f0.95 lens as KETA C plus. With less number of reflective apertures, the lens obtains higher light flux. Chemiluminescent signal can be detected more easily by f0.95 lens with greater sensitivity than f1.4 lens. Whether to upgrade or not, performance differences between KETA C and C plus showed in below figure can be a reference for user's consideration.

MATERIALS

- KETA C and KETA C plus imaging system (Wealtec)
- HRP conjugated goat-anti-mouse-IgG antibody (Santa Cruz)
- Immobilon Western Chemiluminescence HRP substrate (Millipore)

PROCEDURES

1. HRP conjugated Goat-anti-mouse-IgG antibody was diluted to proper concentration with PBS.

Spot	1	2	3	4	5	6
Protein amount (pg/ μ l)	2.5	1.25	0.625	0.31	0.16	0.08

2. NC membranes were moistened with PBS buffer and then dried briefly.
3. Drop 1 μ l series diluted antibody onto NC membrane and then dried briefly.
4. Membranes were added with ECL reagent.
5. Place the membrane on the first sample stage.
6. Capture the result through KETA C imaging system with DynaView function with the setting of capture 20 pictures and exposure time 20 seconds.
7. Then change to 17 mm f0.95 lens and repeat the experiment again.

RESULT

Table 1. Comparison of observation area.

Model		KETA C	KETA C plus
Lens		F1.4	F0.95
Level Stage	Top (cm ²)	6.5 x 8.5	5 x 7
	Middle (cm ²)	12.5 x 17	12 x 16
	Bottom (cm ²)	19.5 x 26	18.5 x 24

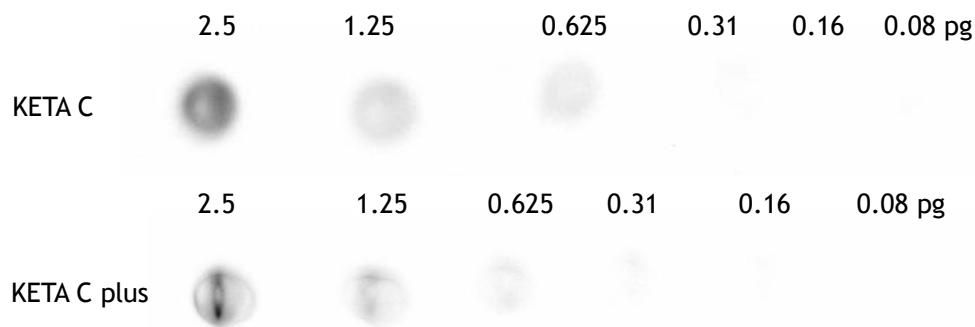


Figure 1. Sensitivity comparison of different lens

DISCUSSION

Due to the lens are different between KETA C and C plus, performance will be different on two important parts. First is the observation area as shown in table 1. KETA C equipped with f1.4/16mm lens of bigger angular field of view $38.5^\circ \times 30.38^\circ \times 22.56^\circ$, so the observation area will be larger than in KETA C plus no matter the samples are placed on top or bottom layer of sample stages. The other difference is sensitivity. The guarantee detection limit of the KETA C plus system is about 0.31 pg and about 0.625 pg in KETA C system. As equipping f0.95/17mm lens with larger aperture in KETA C plus, lower amount of antibody on the NC membrane can be detected in the spotting assay as shown in figure 1. Both of these systems have outstanding sensitivity on chemiluminescent detection, however, if users request for extra-high sensitivity, KETA CL equipped with 2-stage cooled CCD camera that provides higher S/N ratio should be concerned.

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