

Comparison of LuciPac Pen & LuciPac A3

Kikkoman Biochemifa Company

LuciPac Pen / Pen-AQUA



Reagent kit for detecting
ATP+AMP (ATP+AMP assay)

LuciPac A3 Surface / A3 Water



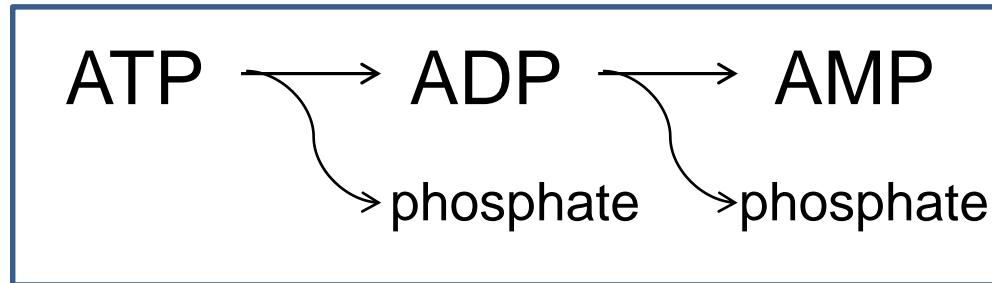
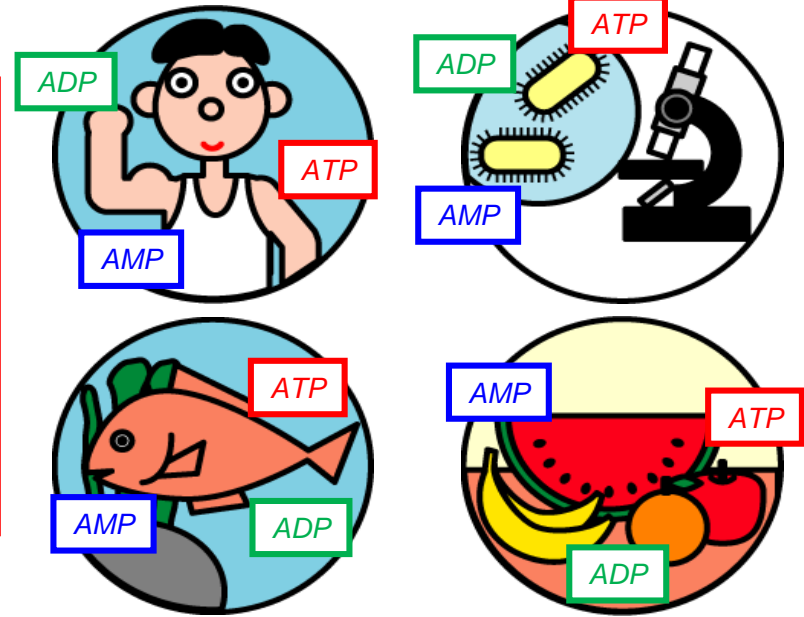
The world's first reagent kit for detecting
ATP+ADP+AMP (A3 assay)

「ATP+AMP assay」 offers advanced hygiene monitoring by detecting contamination with higher sensitivity than ATP assay.

「A3 assay」 offers more advanced hygiene monitoring by detecting contamination with superior sensitivity than 「ATP+AMP assay」.

ATP and Decomposition

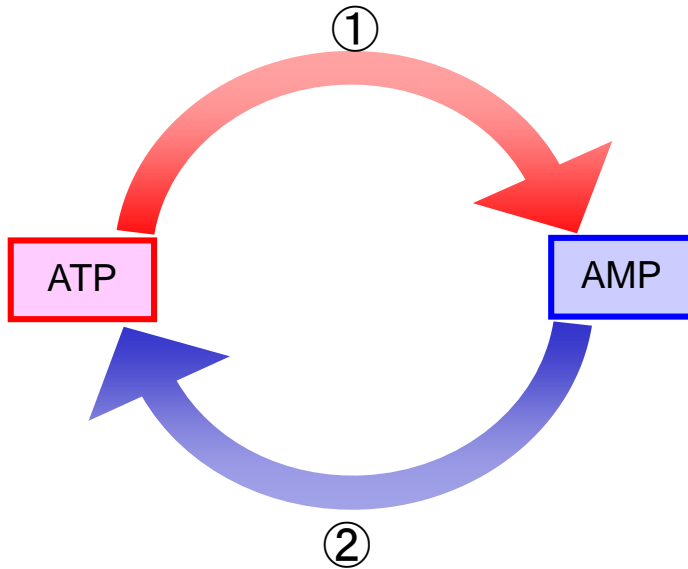
Since ATP is a molecule found in all living cells, it is also found in contaminants such as microorganisms and food residues. ATP is decomposed into ADP and AMP by enzymatic reaction, heating and pH.



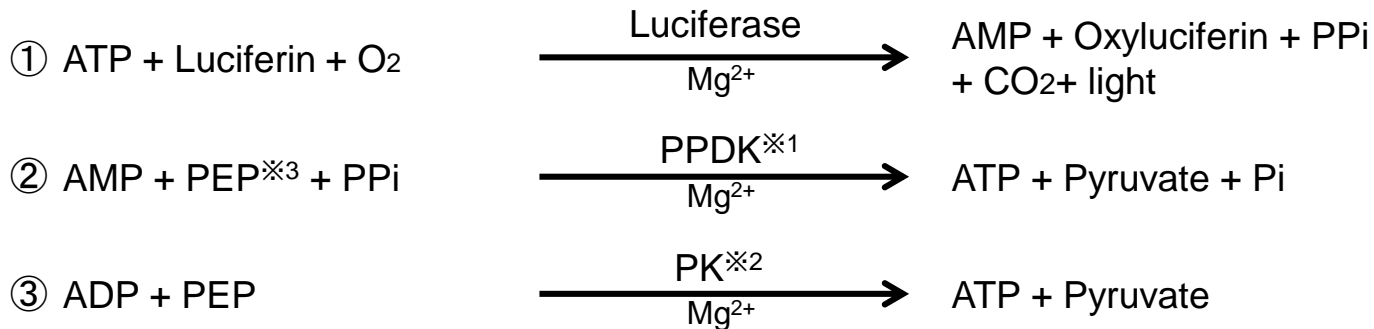
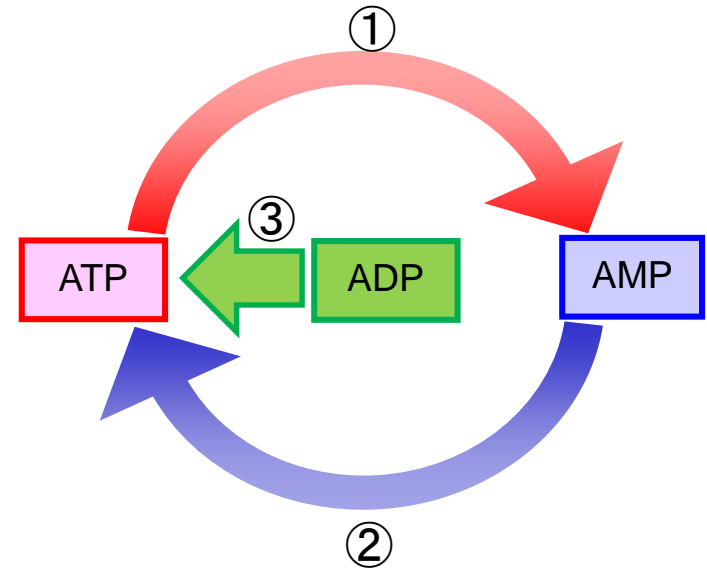
Detection of ATP+AMP+AMP offers higher sensitivity and better detection of contamination.

Advanced Chemistry

LuciPac Pen



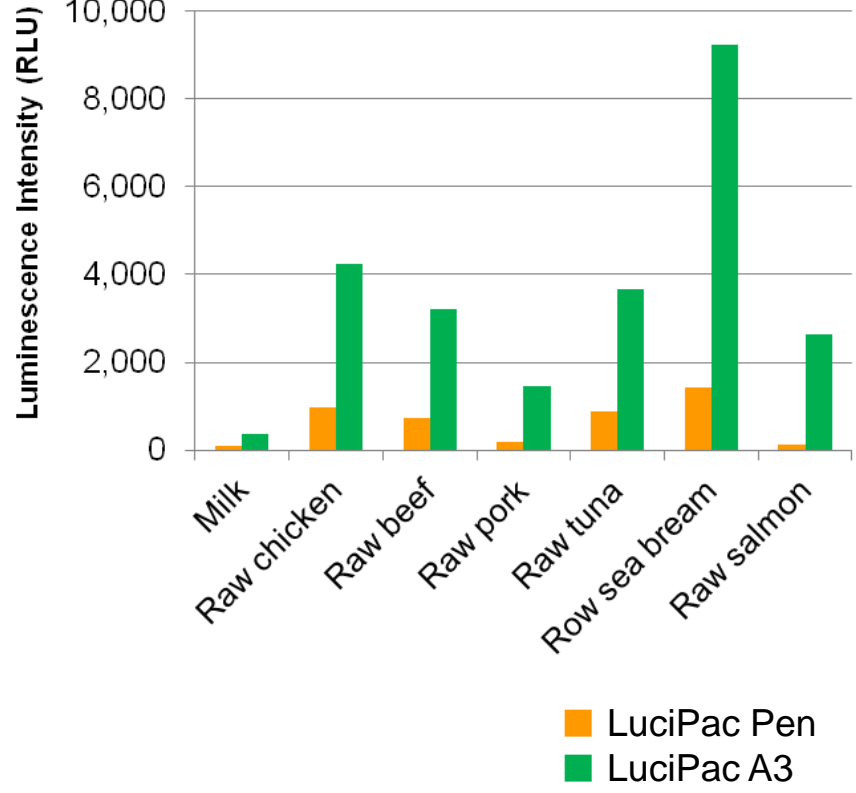
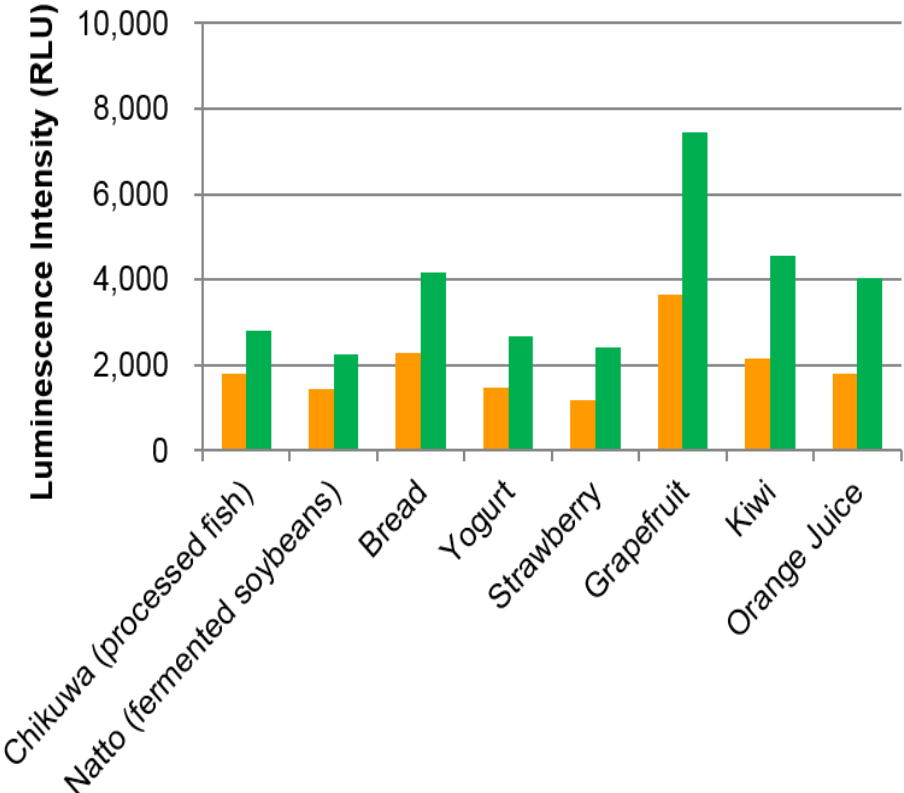
LuciPac A3



※1 PPDK : pyruvate orthophosphate dikinase
 ※2 PK : pyruvate kinase
 ※3 PEP : phosphoenolpyruvate

Detection of food residues

Measurements of diluted samples (Solid samples were diluted after homogenizing with water)



A3 has higher sensitivity to processed fish, fermented food, yogurt and fruit.
A3 has superior sensitivity to fish and meat.

Detection in Kitchen

Test location	LuciPac Pen	LuciPac A3
Dish	11	19
Inner side of vessel	40	123
Colander	115	348
Scoop	108	156
Slicer blade	52	144
Slicer belt	52	85
Stainless steel tray	13	30
inner side and blade of Peeler	3,701	16,622
Knife	48	93
Cutting board for vegetable	76	66
Sponge	42	37
Food thermometer	133	215
Sink drain	3	10
Kitchen counter	97	109
Handle of entrance door	1,491	1,747
Handle of refrigerator	392	502
⋮	⋮	⋮

The ratio between RLU values of LuciPac Pen and LuciPac A3 may vary depending on the amount of ADP being in the test location. A3 shows 1.6 times higher value than Pen on average.

Reference of Benchmark Value①

Test location	LuciPac Pen	LuciPac A3
Hands	1,500	2,000

It is impossible to eliminate all ATP·ADP·AMP by washing. As the ratio of ATP·ADP·AMP is approximately 1:1:2 after hand washing, the benchmark value of LuciPac A3 should be higher than LuciPac Pen due to ADP amount.

Reference of Benchmark Value②

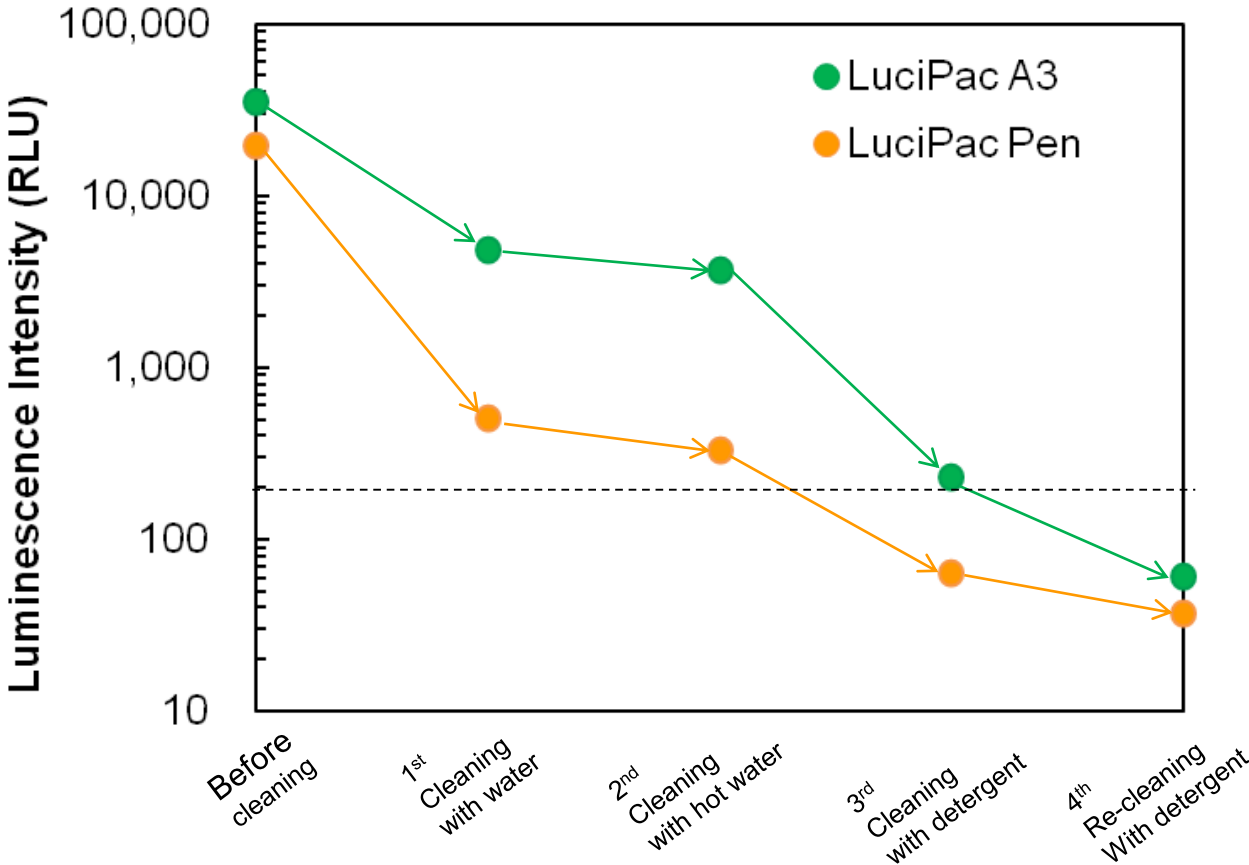
Test location	LuciPac Pen	LuciPac A3
Difficult to clean	500	500
Easy to clean	200	200

As for environment tests, you can perform more advanced hygiene monitoring by setting the same benchmark value for LuciPac A3 as LuciPac Pen.

It is also possible to perform the same level of hygiene monitoring as you did with LuciPac Pen by setting the benchmark value higher, considering the presence of ADP.

Reduction of RLU values after cleaning

After chicken meat sample was added on a stainless steel plate, cleaning and swab tests were performed.

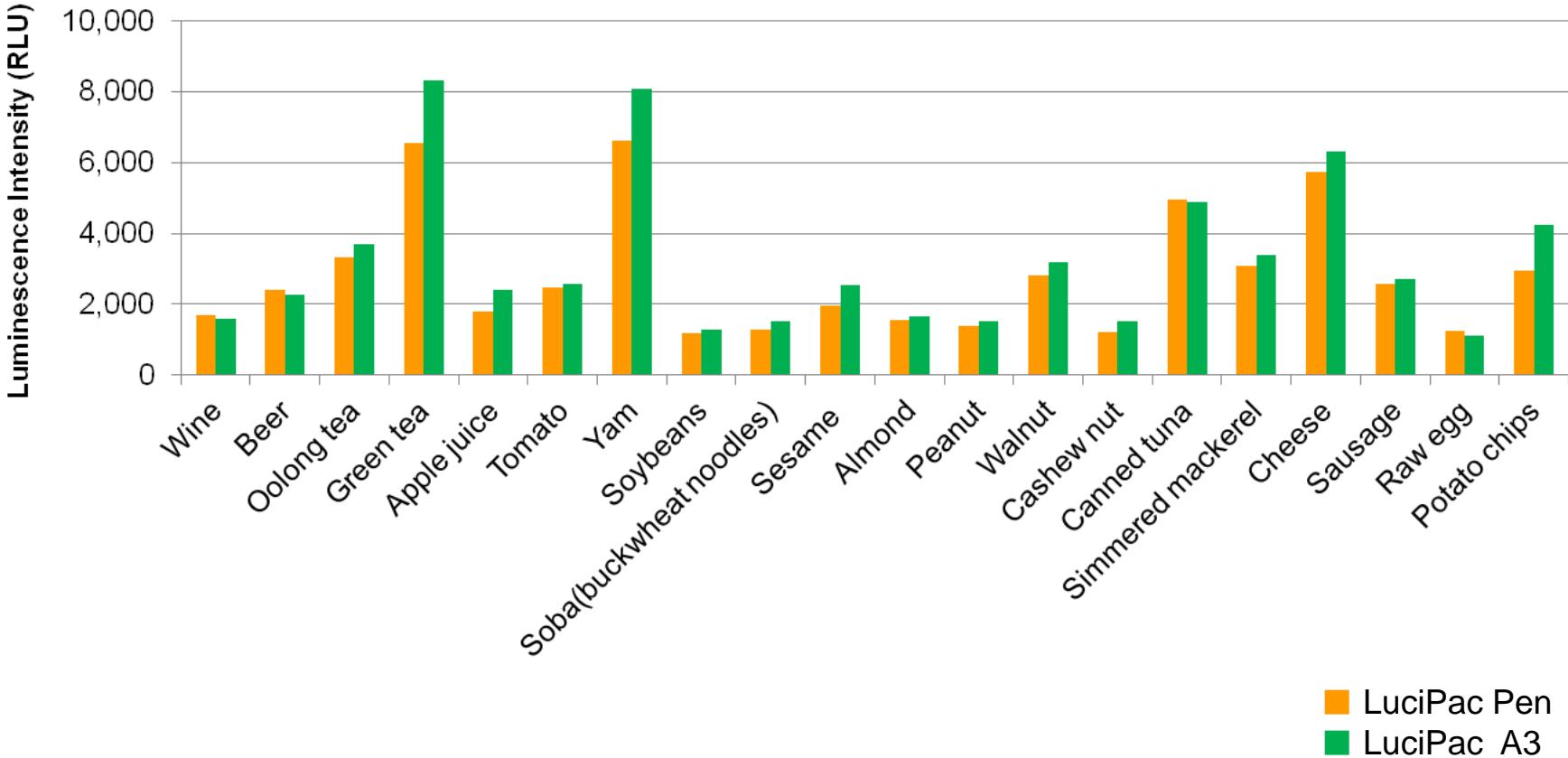


More advanced verification for cleaning efficacy is available by LuciPac A3. If cleaning is done properly, the RLU value falls to the same level as LuciPac Pen.

References

Detection of Food Residues

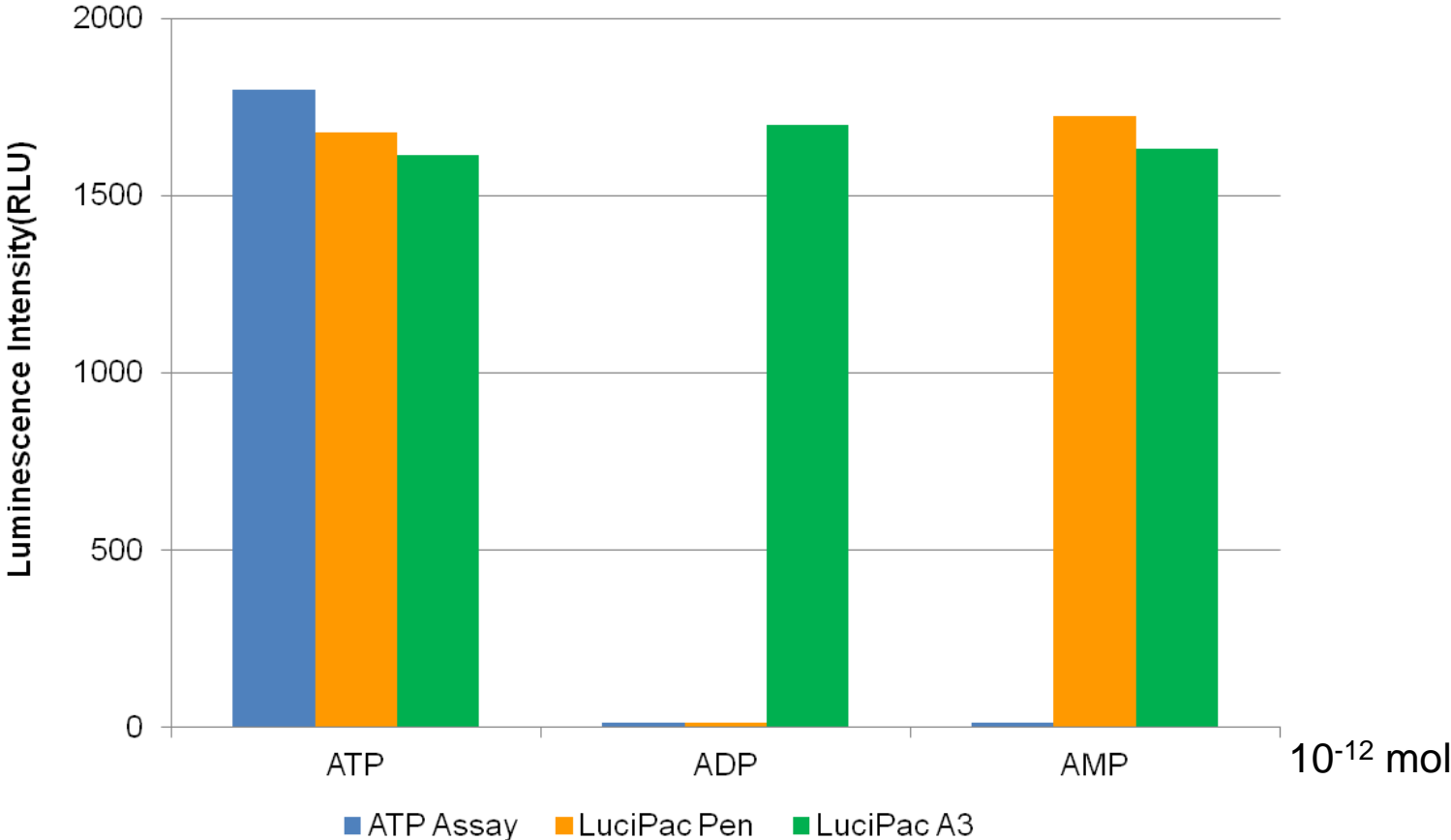
Measurements of diluted samples (Solid samples were diluted after homogenizing with water)



As for food samples shown in the data, LuciPac A3 shows slightly higher sensitivity depending on ADP level.

Detection of ATP·ADP·AMP

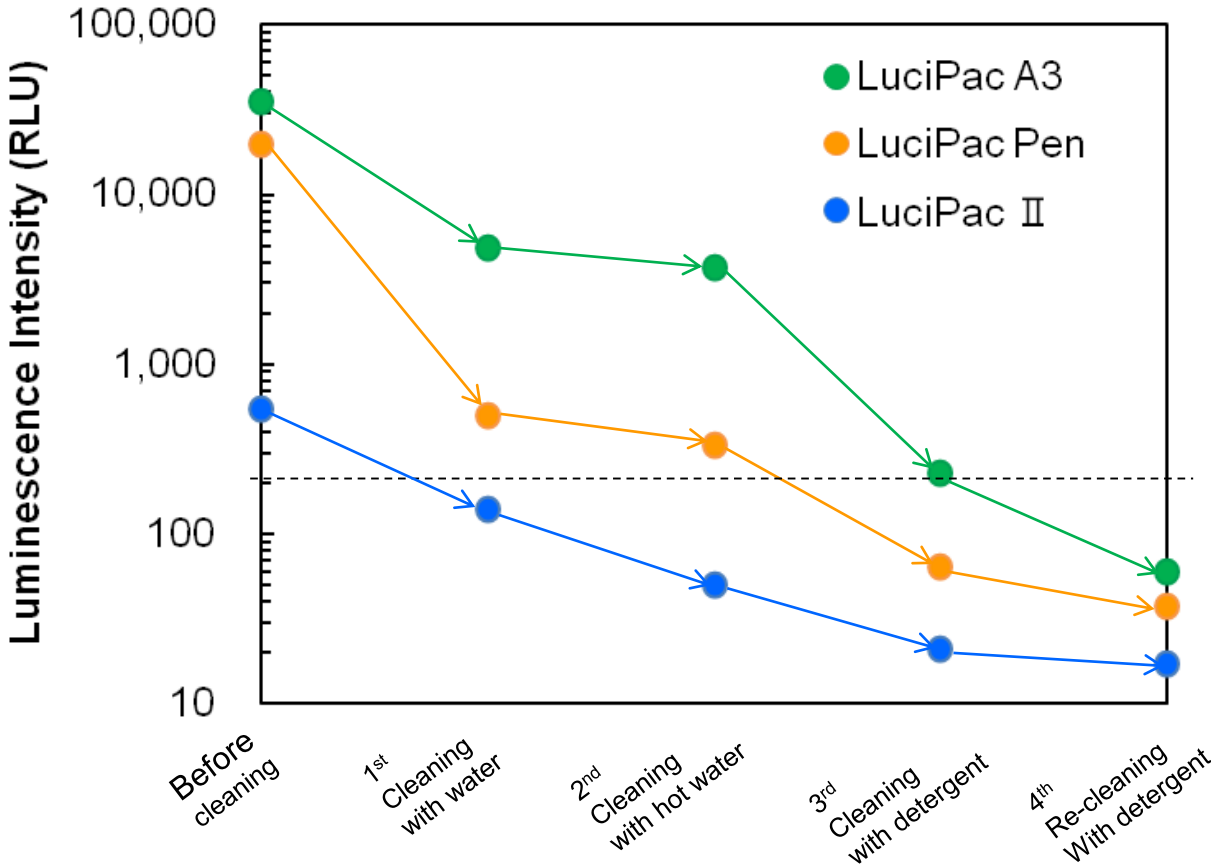
Detection for ATP·ADP·AMP of the same concentration



Only LuciPac A3 can detect ADP

Reduction of RLU values after cleaning

After chicken meat sample was added on a stainless steel plate, cleaning and swab tests were performed.



More advanced verification for cleaning efficacy is available by LuciPac A3. If cleaning is done properly, the RLU value falls to the same level as LuciPac Pen.