



## Literature References citing the use of Milenia® HybriDetect

Date: January 4<sup>th</sup>, 2024

The Milenia HybriDetect is a universal lateral flow platform that allows researchers all over the world an individual *simple rapid test development*. Today Milenia HybriDetect is frequently cited in more than 300 peer reviewed publications, including high impact journals such as Nature or Science.

*Total number of peer reviewed publications citing Milenia HybriDetect: 368*

Our universal lateral flow strips have developed into a valuable development tool, which is perfectly compatible with DNA amplification methods, especially, but not only, isothermal DNA amplification. The robust and easy-to-handle dipsticks are an interesting alternative for the detection of amplification products in low resource settings. Therefore, many researchers use Milenia HybriDetect to underline the Point-of-Care compatibility of their unique assay. Nucleic acid amplification techniques can be multiplexed, highly specific and extremely sensitive. The combination of DNA amplification and lateral flow is a rapidly evolving field.

*More than 95% of all papers citing Milenia HybriDetect use isothermal DNA amplification!*

So far Milenia® HybriDetect has been successfully combined with the polymerase chain reaction (PCR), isothermal amplification methods like the loop mediated isothermal amplification (LAMP) or recombinase polymerase amplification (RPA). The 2020 pandemic, caused by SARS-CoV-2, brought molecular Point-of-Care compatible diagnostic into public and scientific focus.

Since CRISPR/Cas is getting more and more common for scientists, the combination with lateral flow was just a question of time. The application of CRISPR/Cas in combination with isothermal amplification like RPA or LAMP is rising continuously.

*In 2023, 50 % of publications describe the usage of CRISPR/Cas-based nucleic acid detection*

---

## Table of Contents

<b>1.</b>	<b>Polymerase Chain Reaction (PCR)</b> .....	<b>3</b>
<b>2.</b>	<b>Loop mediated isothermal amplification (LAMP)</b> .....	<b>5</b>
<b>3.</b>	<b>Recombinase Polymerase Amplification (RPA)</b> .....	<b>12</b>
<b>4.</b>	<b>CRISPR/Cas-based Nucleic Acid Detection</b> .....	<b>24</b>
<b>5.</b>	<b>Special Applications</b> .....	<b>35</b>
5.1.	Rolling Circle Amplification and Lateral Flow .....	35
5.2.	Aptamers and Lateral Flow .....	35
5.3.	XNA-based Nucleic Acid Detection.....	35
5.4.	Thermophilic helicase dependent isothermal Amplification (tHDA) .....	35
5.5.	Cross Priming Amplification (CPA) .....	35
5.6.	Recombinase-aided Amplification (RAA) .....	36
5.7.	EXponential Amplification Reaction (EXPAR) .....	36
5.8.	Multienzyme Isothermal Rapid Assay (MIRA).....	36

## 1. Polymerase Chain Reaction (PCR)

1. Loose, F. N., Breitbach, A., Bertalan, I., Rüster, D., Truyen, U., & Speck, S. (2020). Diagnostic validation of a rapid and field-applicable PCR-lateral flow test system for point-of-care detection of cyprinid herpesvirus 3 (CyHV-3). *PLoS ONE*, 15(10 October). <https://doi.org/10.1371/journal.pone.0241420> **multiplex**
2. Seo, H., Kil, E. J., Fadhila, C., Vo, T. T. B., Auh, C. K., Lee, T. K., & Lee, S. (2020). Rapid diagnosis of two marine viruses, red sea bream iridovirus and viral hemorrhagic septicemia virus by PCR combined with lateral flow assay. *VirusDisease*, 31(3), 251–256. <https://doi.org/10.1007/s13337-020-00577-z>
3. Wint, N. Y., Han, K. K., Yamprayooswat, W., Ruangsuj, P., Mangmool, S., Promptmas, C., & Yasawong, M. (2019). A Novel Nucleic Lateral Flow Assay for Screening phaR-Containing Bacillus spp. *Journal of Microbiology and Biotechnology*. <https://doi.org/10.4014/jmb.1907.07045>
4. Pecchia, S., & Da Lio, D. (2018). Development of a rapid PCR-Nucleic Acid Lateral Flow Immunoassay (PCR-NALFIA) based on rDNA IGS sequence analysis for the detection of *Macrophomina phaseolina* in soil. *Journal of Microbiological Methods*, 151, 118–128. <https://doi.org/10.1016/j.mimet.2018.06.010>
5. Zaky, W. I., Tomaino, F. R., Pilotte, N., Laney, S. J., & Williams, S. A. (2018). Backpack PCR: A point-of-collection diagnostic platform for the rapid detection of *Brugia* parasites in mosquitoes. *PLoS Neglected Tropical Diseases*, 12(11). <https://doi.org/10.1371/journal.pntd.0006962>
6. Janz, V., Schoon, J., Morgenstern, C., Preininger, B., Reinke, S., Duda, G., Breitbach, A., Perka, C. F., & Geissler, S. (2018). Rapid detection of periprosthetic joint infection using a combination of 16s rDNA polymerase chain reaction and lateral flow immunoassay: A Pilot Study. *Bone & joint research*, 7(1), 12–19. <https://doi.org/10.1302/2046-3758.71.BJR-2017-0103.R2>
7. Muangsuwan, W., Ruangsuj, P., Chaichanachaicharn, P., & Yasawong, M. (2015). A novel nucleic lateral flow assay for screening of PHA-producing haloarchaea. *Journal of Microbiological Methods*, 116, 8–14. <https://doi.org/10.1016/j.mimet.2015.06.012>
8. Wong, Y. L., Wong, K. L., & Shaw, P. C. (2015). Rapid authentication of *Cordyceps* by lateral flow dipstick. *Journal of Pharmaceutical and Biomedical Analysis*, 111, 306–310. <https://doi.org/10.1016/j.jpba.2015.04.003> **multiplex**
9. Breitbach A., Jacob F., Hutzler M., Koob J. (2017). Simple Rapid Test for Establishing the Presence of Beer-Spoilage Organisms. Brauwelt International. [Link to article](#). **Multiplex**
10. Seo, S. B., Hwang, J. S., Kim, E., Kim, K., Roh, S., Lee, G., Lim, J., Kang, B., Jang, S., Son, S. U., Kang, T., Jung, J., Kim, J. S., Keun-Hur, Han, T. S., & Lim, E. K. (2022). Isothermal amplification-mediated lateral flow biosensors for in vitro diagnosis of gastric cancer-related microRNAs. *Talanta*, 246, 123502. <https://doi.org/10.1016/J.TALANTA.2022.123502>
11. Kwawukume, S., Velez, F. J., Williams, D., Cui, L., & Singh, P. (2023). Rapid PCR-lateral flow assay for the onsite detection of Atlantic white shrimp. *Food Chemistry: Molecular Sciences*, 6, 100164. <https://doi.org/10.1016/J.FOCHMS.2023.100164>

12. Saetang, J., Sukkapat, P., Palamae, S., Singh, P., Senathipathi, D. N., Buatong, J., & Benjakul, S. (2023). Multiplex PCR-Lateral Flow Dipstick Method for Detection of Thermostable Direct Hemolysin (TDH) Producing *V. chaemolyticus*. *Biosensors* 2023, Vol. 13, Page 698, 13(7), 698. <https://doi.org/10.3390/BIOS13070698>
13. Sukjai, A., Puangmali, T., Wichajarn, K., & Monthatong, M. (2023). Application of the PCR and allele-specific PCR-nucleic acid lateral flow immunoassay for the detection of the SRY gene and the G1138A mutation in the FGFR3 gene for the human DNA. <https://doi.org/10.7324/JABB.2023.11518>

## 2. Loop mediated isothermal amplification (LAMP)

1. Ağel, E., Sağcan, H., Ceyhan, İ., & Durmaz, R. (2020). Optimization of isothermal amplification method for *Mycobacterium tuberculosis* detection and visualization method for fieldwork. *Turkish Journal of Medical Sciences*, 50(4), 1069–1075. <https://doi.org/10.3906/sag-1910-6>
2. Allgöwer, S. M., Hartmann, C. A., & Holzhauser, T. (2020). The development of highly specific and sensitive primers for the detection of potentially allergenic soybean (*Glycine max*) using loop-mediated isothermal amplification combined with lateral flow dipstick (LAMP-LFD). *Foods*, 9(4). <https://doi.org/10.3390/foods9040423>
3. Andrade, T. P. D., & Lightner, D. V. (2009). Development of a method for the detection of infectious myonecrosis virus by reverse-transcription loop-mediated isothermal amplification and nucleic acid lateral flow hybrid assay. *Journal of Fish Diseases*, 32(11), 911–924. <https://doi.org/10.1111/j.1365-2761.2009.01072.x> RNA
4. Arunrut, N., Kampeera, J., Suebsing, R., & Kiatpathomchai, W. (2013). Rapid and sensitive detection of shrimp infectious myonecrosis virus using a reverse transcription loop-mediated isothermal amplification and visual colorogenic nanogold hybridization probe assay. *Journal of virological methods*, 193(2), 542–547. <https://doi.org/10.1016/j.jviromet.2013.07.017> RNA
5. Arunrut, N., Seetang-Nun, Y., Phromjai, J., Panphut, W., & Kiatpathomchai, W. (2011). Rapid and sensitive detection of Laem-Singh virus by reverse transcription loop-mediated isothermal amplification combined with a lateral flow dipstick. *Journal of Virological Methods*, 177(1), 71–74. <https://doi.org/10.1016/j.jviromet.2011.06.020> RNA
6. Asih, A. U., Janetanakit, T., Nasamran, C., Bunpapong, N., Boonyapisitsopa, S., Amonsin, A. (2021). Reverse transcription loop-mediated isothermal amplification combined with lateral flow device (RT-LAMP-LFD) for swine influenza virus detection. *Thai Journal of Veterinary Medicine*, 51 (1). <https://he01.tci-thaijo.org/index.php/tjvm/article/view/247432> RNA
7. Bhadra, S., Riedel, T. E., Lakhotia, S., Tran, N. D., & Ellington, A. D. (2021). High-Surety Isothermal Amplification and Detection of SARS-CoV-2. *mSphere*, 6(3), e00911-20. <https://doi.org/10.1128/mSphere.00911-20> multiplex RNA
8. Bucher, B. J., Muchaamba, G., Kamber, T., Kronenberg, P. A., Abdykerimov, K. K., Isaev, M., Deplazes, P., & Alvarez Rojas, C. A. (2021). LAMP Assay for the Detection of *Echinococcus multilocularis* Eggs Isolated from Canine Faeces by a Cost-Effective NaOH-Based DNA Extraction Method. *Pathogens (Basel, Switzerland)*, 10(7), 847. <https://doi.org/10.3390/pathogens10070847>
9. Chowdry, V. K., Luo, Y., Widén, F., Qiu, H. J., Shan, H., Belák, S., & Liu, L. (2014). Development of a loop-mediated isothermal amplification assay combined with a lateral flow dipstick for rapid and simple detection of classical swine fever virus in the field. *Journal of Virological Methods*, 197, 14–18. <https://doi.org/10.1016/j.jviromet.2013.11.013> RNA
10. Ding, W. C., Chen, J., Shi, Y. H., Lu, X. J., & Li, M. Y. (2010). Rapid and sensitive detection of infectious spleen and kidney necrosis virus by loop-mediated isothermal amplification combined with a lateral flow dipstick. *Archives of Virology*, 155(3), 385–389. <https://doi.org/10.1007/s00705-010-0593-4>

11. Huang, H. L., Gao, W. F., Zhu, P., Zhou, C. X., Qiao, L. L., Dang, C. Y., ... Yan, X. J. (2020). Molecular method for rapid detection of the red tide dinoflagellate *Karenia mikimotoi* in the coastal region of Xiangshan Bay, China. *Journal of Microbiological Methods*, 168. <https://doi.org/10.1016/j.mimet.2019.105801>
12. Jaroenram, W., Kiatpathomchai, W., & Flegel, T. W. (2009, April). Rapid and sensitive detection of white spot syndrome virus by loop-mediated isothermal amplification combined with a lateral flow dipstick. *Molecular and Cellular Probes*, Vol. 23, pp. 65–70. <https://doi.org/10.1016/j.mcp.2008.12.003>
13. Kaewphinit, T., Arunrut, N., Kiatpathomchai, W., Santiwatanakul, S., Jaratsing, P., & Chansiri, K. (2013). Detection of *Mycobacterium tuberculosis* by using loop-mediated isothermal amplification combined with a lateral flow dipstick in clinical samples. *BioMed Research International*, 2013. <https://doi.org/10.1155/2013/926230>
14. Kanchanaphum, P. (2018). Time course of detection of human Male DNA from stained blood sample on various surfaces by loop mediated isothermal amplification and polymerase chain reaction. *BioMed Research International*, 2018. <https://doi.org/10.1155/2018/2981862>
15. Khunthong, S., Jaroenram, W., Arunrut, N., Suebsing, R., Mungsantisuk, I., & Kiatpathomchai, W. (2013, March). Rapid and sensitive detection of shrimp yellow head virus by loop-mediated isothermal amplification combined with a lateral flow dipstick. *Journal of Virological Methods*, Vol. 188, pp. 51–56. <https://doi.org/10.1016/j.jviromet.2012.11.041>
16. Kiatpathomchai, W., Jaroenram, W., Arunrut, N., Jitrapakdee, S., & Flegel, T. W. (2008). Shrimp Taura syndrome virus detection by reverse transcription loop-mediated isothermal amplification combined with a lateral flow dipstick. *Journal of Virological Methods*, 153(2), 214–217. <https://doi.org/10.1016/j.jviromet.2008.06.025> **RNA**
17. Kikuchi, T., Aikawa, T., Oeda, Y., Karim, N., & Kanzaki, N. (2009). A rapid and precise diagnostic method for detecting the pinewood nematode *Bursaphelenchus xylophilus* by loop-mediated isothermal amplification. *Phytopathology*, 99(12), 1365–1369. <https://doi.org/10.1094/PHYTO-99-12-1365>
18. Kumvongpin, R., Jearanaikoon, P., Wilailuckana, C., Sae-Ung, N., Prasongdee, P., Daduang, S., ... Daduang, J. (2017). Detection assay for HPV16 and HPV18 by loop-mediated isothermal amplification with lateral flow dipstick tests. *Molecular Medicine Reports*, 15(5), 3203–3209. <https://doi.org/10.3892/mmr.2017.6370>
19. Kusumawati, A., Tampubolon, I. D., Hendarta, N. Y., Salasia, S. I. O., Wanahari, T. A., Mappakaya, B. A., & Hartati, S. (2015). Use of reverse transcription loop-mediated isothermal amplification combined with lateral flow dipstick for an easy and rapid detection of Jembrana disease virus. *VirusDisease*, 26(3), 189–195. <https://doi.org/10.1007/s13337-015-0277-5> **RNA**
20. Lalle, M., Possenti, A., Dubey, J. P., & Pozio, E. (2018). Loop-Mediated Isothermal Amplification-Lateral-Flow Dipstick (LAMP-LFD) to detect *Toxoplasma gondii* oocyst in ready-to-eat salad. *Food Microbiology*, 70, 137–142. <https://doi.org/10.1016/j.fm.2017.10.001>
21. Ledlod, S., Bunroddith, K., Areekit, S., Santiwatanakul, S., & Chansiri, K. (2020). Development of a duplex lateral flow dipstick test for the detection and differentiation of *Listeria* spp. and *Listeria monocytogenes* in meat products based on loop-mediated isothermal amplification. *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences*, 1139. <https://doi.org/10.1016/j.jchromb.2019.121834>

22. Liu, L., Xu, Y., Zhong, W., Li, L., Li, W., & Xiao, Q. (2019). Comparison of three terminal detection methods based on loop mediated isothermal amplification (Lamp) assay for spring viremia of carp virus (svcv). *Turkish Journal of Fisheries and Aquatic Sciences*, 19(9), 805–816. [https://doi.org/10.4194/1303-2712-v19\\_9\\_09](https://doi.org/10.4194/1303-2712-v19_9_09)
23. Mamba, T. S., Mbae, C. K., Kinyua, J., Mulinge, E., Mburugu, G. N., & Njiru, Z. K. (2018). Lateral Flow Loop-Mediated Isothermal Amplification Test with Stem Primers: Detection of Cryptosporidium Species in Kenyan Children Presenting with Diarrhea. *Journal of Tropical Medicine*, 2018. <https://doi.org/10.1155/2018/7659730>
24. Nawattanapaiboon, K., Prombun, P., Santanirand, P., Vongsakulyanon, A., Sriksirin, T., Sutapun, B., & Kiatpathomchai, W. (2016). Hemoculture and Direct Sputum Detection of mecA-Mediated Methicillin-Resistant Staphylococcus aureus by Loop-Mediated Isothermal Amplification in Combination With a Lateral-Flow Dipstick. *Journal of Clinical Laboratory Analysis*, 30(5), 760–767. <https://doi.org/10.1002/jcla.21935>
25. Nimitphak, T., Kiatpathomchai, W., & Flegel, T. W. (2008). Shrimp hepatopancreatic parvovirus detection by combining loop-mediated isothermal amplification with a lateral flow dipstick. *Journal of Virological Methods*, 154(1–2), 56–60. <https://doi.org/10.1016/j.jviromet.2008.09.003>
26. Nimitphak, T., Meemetta, W., Arunrut, N., Senapin, S., & Kiatpathomchai, W. (2010). Rapid and sensitive detection of Penaeus monodon nucleopolyhedrovirus (PemoNPV) by loop-mediated isothermal amplification combined with a lateral-flow dipstick. *Molecular and Cellular Probes*, Vol. 24, pp. 1–5. <https://doi.org/10.1016/j.mcp.2009.09.004>
27. Njiru, Z. K. (2011). Rapid and sensitive detection of human African trypanosomiasis by loop-mediated isothermal amplification combined with a lateral-flow dipstick. *Diagnostic Microbiology and Infectious Disease*, 69(2), 205–209. <https://doi.org/10.1016/j.diagmicrobio.2010.08.026>
28. Njiru, Z. K., Ouma, J. O., Enyaru, J. C., & Dargantes, A. P. (2010). Loop-mediated Isothermal Amplification (LAMP) test for detection of Trypanosoma evansi strain B. *Experimental Parasitology*, 125(3), 196–201. <https://doi.org/10.1016/j.exppara.2010.01.017>
29. Panich, W., Tejangkura, T., & Chontanarath, T. (2021). Novel high-performance detection of Raillietina echinobothrida, Raillietina tetragona, and Raillietina cestillus using loop-mediated isothermal amplification coupled with a lateral flow dipstick (LAMP-LFD). *Veterinary parasitology*, 292, 109396. <https://doi.org/10.1016/j.vetpar.2021.109396>
30. Peng, H., Long, H., Huang, W., Liu, J., Cui, J., Kong, L., Hu, X., Gu, J., & Peng, D. (2017). Rapid, simple and direct detection of Meloidogyne hapla from infected root galls using loop-mediated isothermal amplification combined with FTA technology. *Scientific reports*, 7, 44853. <https://doi.org/10.1038/srep44853>
31. Plaon, S., Longyant, S., Sithigorngul, P., & Chaivisuthangkura, P. (2015). Rapid and sensitive detection of Vibrio alginolyticus by loop-mediated isothermal amplification combined with a lateral flow dipstick targeted to the rpoX gene. *Journal of Aquatic Animal Health*, 27(3), 156–163. <https://doi.org/10.1080/08997659.2015.1037468>
32. Prompamorn, P., Sithigorngul, P., Rukpratanporn, S., Longyant, S., Sridulyakul, P., & Chaivisuthangkura, P. (2011). The development of loop-mediated isothermal amplification combined with lateral flow dipstick for detection of Vibrio parahaemolyticus. *Letters in Applied Microbiology*, 52(4), 344–351. <https://doi.org/10.1111/j.1472-765X.2011.03007.x>

33. Puthawibool, T., Senapin, S., Flegel, T. W., & Kiatpathomchai Wansika, W. (2010). Rapid and sensitive detection of *Macrobrachium rosenbergii* nodavirus in giant freshwater prawns by reverse transcription loop-mediated isothermal amplification combined with a lateral flow dipstick. *Molecular and Cellular Probes*, 24(5), 244–249. <https://doi.org/10.1016/j.mcp.2010.07.003> **RNA**
34. Puthawibool, T., Senapin, S., Kiatpathomchai, W., & Flegel, T. W. (2009). Detection of shrimp infectious myonecrosis virus by reverse transcription loop-mediated isothermal amplification combined with a lateral flow dipstick. *Journal of Virological Methods*, 156(1–2), 27–31. <https://doi.org/10.1016/j.jviromet.2008.10.018> **RNA**
35. Rigano, L. A., Malamud, F., Orce, I. G., Filippone, M. P., Marano, M. R., Do Amaral, A. M., ... Vojnov, A. A. (2014). Rapid and sensitive detection of *Candidatus Liberibacter asiaticus* by loop mediated isothermal amplification combined with a lateral flow dipstick. *BMC Microbiology*, 14(1). <https://doi.org/10.1186/1471-2180-14-86>
36. Sagcan, H., & Turgut Kara, N. (2019). Detection of Potato ring rot Pathogen *Clavibacter michiganensis* subsp. *sepedonicus* by Loop-mediated isothermal amplification (LAMP) assay. *Scientific Reports*, 9(1). <https://doi.org/10.1038/s41598-019-56680-9>
37. Soliman, H., & El-Matbouli, M. (2010). Loop mediated isothermal amplification combined with nucleic acid lateral flow strip for diagnosis of cyprinid herpes virus-3. *Molecular and Cellular Probes*, 24(1), 38–43. <https://doi.org/10.1016/j.mcp.2009.09.002>
38. Sun, Y. L., Yen, C. H., & Tu, C. F. (2014). Visual detection of canine parvovirus based on loop-mediated isothermal amplification combined with enzyme-linked immunosorbent assay and with lateral flow dipstick. *Journal of Veterinary Medical Science*, 76(4), 509–516. <https://doi.org/10.1292/jvms.13-0448>
39. Surasilp, T., Longyant, S., Rukpratanporn, S., Sridulyakul, P., Sithigorngul, P., & Chaivisuthangkura, P. (2011). Rapid and sensitive detection of *Vibrio vulnificus* by loop-mediated isothermal amplification combined with lateral flow dipstick targeted to rpoS gene. *Molecular and Cellular Probes*, 25(4), 158–163. <https://doi.org/10.1016/j.mcp.2011.04.001>
40. Thongphueak, D., Chansiri, K., Sriyapai, T., Areekit, S., Santiwatanakul, S., & Wangroongsarb, P. (2019). Development of the rapid test kit for the identification of *Campylobacter* spp. Based on Loop-mediated Isothermal Amplification (LAMP) in combination with a Lateral Flow Dipstick (LFD) and Gold Nano-DNA Probe (AuNPs). *Science and Technology Asia*, 24(1), 63–71. <https://doi.org/10.14456/scitechasia.2019.7>
41. Tsai, S. M., Liu, H. J., Shien, J. H., Lee, L. H., Chang, P. C., & Wang, C. Y. (2012). Rapid and sensitive detection of infectious bursal disease virus by reverse transcription loop-mediated isothermal amplification combined with a lateral flow dipstick. *Journal of Virological Methods*, 181(1), 117–124. <https://doi.org/10.1016/j.jviromet.2011.09.002> **RNA**
42. Vaagt, F., Haase, I., & Fischer, M. (2013). Loop-mediated isothermal amplification (LAMP)-based method for rapid mushroom species identification. *Journal of Agricultural and Food Chemistry*, 61(8), 1833–1840. <https://doi.org/10.1021/jf304824b>
43. Varona, M., Eitzmann, D. R., & Anderson, J. L. (2021). Sequence-Specific Detection of ORF1a, BRAF, and ompW DNA Sequences with Loop Mediated Isothermal Amplification on Lateral Flow Immunoassay Strips Enabled by Molecular Beacons. *Analytical chemistry*, 93(9), 4149–4153. <https://doi.org/10.1021/acs.analchem.0c05355>



44. Yang, Y., Li, Q., Wang, S., Chen, X., & Du, A. (2016). Rapid and sensitive detection of *Babesia bovis* and *Babesia bigemina* by loop-mediated isothermal amplification combined with a lateral flow dipstick. *Veterinary Parasitology*, 219, 71–76. <https://doi.org/10.1016/j.vetpar.2016.02.004>
45. Yongkiettrakul, S., Jaroenram, W., Arunrut, N., Chareanchim, W., Pannengpetch, S., Suebsing, R., ... Kongkasuriyachai, D. (2014). Application of loop-mediated isothermal amplification assay combined with lateral flow dipstick for detection of *Plasmodium falciparum* and *Plasmodium vivax*. *Parasitology International*, 63(6), 777–784. <https://doi.org/10.1016/j.parint.2014.06.004>
46. Yongkiettrakul, S., Kolié, F. R., Kongkasuriyachai, D., Sattabongkot, J., Nguitragool, W., Nawattanapaibool, N., ... Buates, S. (2020). Validation of PfSNP-LAMP-Lateral Flow Dipstick for Detection of Single Nucleotide Polymorphism Associated with Pyrimethamine Resistance in *Plasmodium falciparum*. *Diagnostics*, 10(11), 948. <https://doi.org/10.3390/diagnostics10110948>
47. Yun, X., Hao, Y., Peng, Z., Hailong, H., Qianqian, H., & Jian, Z. (2015). Repaid and accurate detection of *Khuskia oryzae* by loopmediated isothermal amplification combined with a lateral flow dipstick. *Chemical Engineering Transactions*, 46, 877–882. <https://doi.org/10.3303/CET1546147>
48. Njiru Z. K. (2011). Rapid and sensitive detection of human African trypanosomiasis by loop-mediated isothermal amplification combined with a lateral-flow dipstick. *Diagnostic microbiology and infectious disease*, 69(2), 205–209. <https://doi.org/10.1016/j.diagmicrobio.2010.08.026>
49. Mekuria, T. A., Zhang, S., & Eastwell, K. C. (2014). Rapid and sensitive detection of Little cherry virus 2 using isothermal reverse transcription-recombinase polymerase amplification. *Journal of virological methods*, 205, 24–30. <https://doi.org/10.1016/j.jviromet.2014.04.015>
50. Singleton, J., Osborn, J. L., Lillis, L., Hawkins, K., Guelig, D., Price, W., Johns, R., Ebels, K., Boyle, D., Weigl, B., & LaBarre, P. (2014). Electricity-free amplification and detection for molecular point-of-care diagnosis of HIV-1. *PloS one*, 9(11), e113693. <https://doi.org/10.1371/journal.pone.0113693>
51. Lu, H., Tang, J., Sun, K., & Yu, X. (2021). Identification of a New Badnavirus in the Chinaberry (*Melia azedarach*) Tree and Establishment of a LAMP-LFD Assay for Its Rapid and Visual Detection. *Viruses*, 13(12), 2408. <https://doi.org/10.3390/v13122408>
52. Han, X., Zhao, T., Yan, T., & Yu, R. (2021). Rapid and sensitive detection of *Karenia mikimotoi* by loop-mediated isothermal amplification combined with a lateral flow dipstick. *Environmental science and pollution research international*, 10.1007/s11356-021-17536-w. Advance online publication. <https://doi.org/10.1007/s11356-021-17536-w>
53. Khangembam, R., Tóth, M., Vass, N., Várady, M., Czeglédi, L., Farkas, R., & Antonopoulos, A. (2021). Point of care colourimetric and lateral flow LAMP assay for the detection of *Haemonchus contortus* in ruminant faecal samples. Dosage LAMP colorimétrique et à flux latéral pour la détection au point d'intervention d'*Haemonchus contortus* dans les échantillons de selles de ruminants. *Parasite (Paris, France)*, 28, 82. <https://doi.org/10.1051/parasite/2021078>
54. Sharma S, Kumar S, Ahmed MZ, Bhardwaj N, Singh J, Kumari S, Savargaonkar D, Anvikar AR, Das J. Advanced Multiplex Loop Mediated Isothermal Amplification (mLAMP) Combined with Lateral Flow Detection (LFD) for Rapid Detection of Two Prevalent Malaria Species in India and Melting Curve Analysis. *Diagnostics*. 2022; 12(1):32. <https://doi.org/10.3390/diagnostics12010032>

55. Li, J., Feng, M., & Yu, X. (2021). Rapid detection of mcyG gene of microcystins producing cyanobacteria in water samples by recombinase polymerase amplification combined with lateral flow strips. *Journal of water and health*, 19(6), 907–917. <https://doi.org/10.2166/wh.2021.091>
56. Agarwal, S., Warnt, C., Henkel, J., Schrick, L., Nitsche, A., & Bier, F. F. (2022). Lateral flow–based nucleic acid detection of SARS-CoV-2 using enzymatic incorporation of biotin-labeled dUTP for POCT use. *Analytical and Bioanalytical Chemistry*, 414(10), 3177–3186. <https://doi.org/10.1007/S00216-022-03880-4/TABLES/1>
57. Badoul, N. A., Kagira, J., Ng'Ong'A, F., & Dinka, H. (2022). Development of Loop-Mediated Isothermal Amplification Combined with Lateral Flow Dipstick Assay for a Rapid and Sensitive Detection of Cystic Echinococcosis in Livestock in Kenya. *Journal of Tropical Medicine*, 2022. <https://doi.org/10.1155/2022/4928009>
58. Sukumolanan, P., Demeekul, K., & Petchdee, S. (2022). Development of a Loop-Mediated Isothermal Amplification Assay Coupled With a Lateral Flow Dipstick Test for Detection of Myosin Binding Protein C3 A31P Mutation in Maine Coon Cats. *Frontiers in Veterinary Science*, 9, 39. <https://doi.org/10.3389/fvets.2022.819694>
59. Lu, X., Lin, H., Feng, X., Lui, G. C.Y., & Hsing, I.-M. (2022). Disposable and low-cost pen-like sensor incorporating nucleic-acid amplification based lateral-flow assay for at-home tests of communicable pathogens. *Biosensors and Bioelectronics*: X, 12, 100248. <https://doi.org/10.1016/J.BIOSX.2022.100248>
60. Canuti, M., Saxena, A., Rai, P., Mehrotra, S., Baby, S., Singh, S., Srivastava, V., Priya, S., & Sharma, S. K. (2022). Development and Clinical Validation of RT-LAMP-Based Lateral-Flow Devices and Electrochemical Sensor for Detecting Multigene Targets in SARS-CoV-2. *International Journal of Molecular Sciences* 2022, Vol. 23, Page 13105, 23(21), 13105. <https://doi.org/10.3390/IJMS232113105>
61. Areekit, S., Tangjitrungrot, P., Khuchareontaworn, S., Rattanathanawan, K., Jaratsing, P., Yasawong, M., Chansiri, G., Viseshakul, N., & Chansiri, K. (2022). Development of Duplex LAMP Technique for Detection of Porcine Epidemic Diarrhea Virus (PEDV) and Porcine Circovirus Type 2 (PCV 2). *Current Issues in Molecular Biology* 2022, Vol. 44, Pages 5427-5439, 44(11), 5427–5439. <https://doi.org/10.3390/CIMB44110368>
62. Kubo, S., Niimi, H., & Kitajima, I. (2022). Loop-mediated isothermal amplification assay for fluorescence analysis and lateral flow detection of male DNA. *Analytical Biochemistry*, 115029. <https://doi.org/10.1016/J.AB.2022.115029>
63. Nak-on, S., Tejangkura, T., & Chontanarith, T. (2023). Multi-detection for Paramphistomes Using Novel Manually Designed PAR-LAMP Primers and its Application in a Lateral Flow Dipstick (LAMP-LFD) System. *Veterinary Parasitology*, 109905. <https://doi.org/10.1016/J.VETPAR.2023.109905>
64. Panich, W., Tejangkura, T., & Chontanarith, T. (2023). Feasibility of a DNA biosensor assay based on loop-mediated isothermal amplification combined with a lateral flow dipstick assay for the visual detection of *Ascaridia galli* eggs in faecal samples. <https://doi.org/10.1080/03079457.2023.2196251>, 1–34. <https://doi.org/10.1080/03079457.2023.2196251>
65. Schäfer, L., Allgöwer, S., & Holzhauser, T. (2023). Rapid DNA extraction and colorimetric amplicon visualisation speed up LAMP-based detection of soybean allergen in foods. *European Food Research and Technology*, 1, 1–12. <https://doi.org/10.1007/S00217-023-04334-6/FIGURES/5>
66. Bhadra, S., Esteve-Gasent, M. D., & Ellington, A. D. (2023). Analysis of macerated ticks using Boolean logic gating colorimetric isothermal nucleic acid assays for Lyme *Borrelia* and *Ixodes scapularis* ticks. *Scientific Reports* 2023 13:1, 13(1), 1–11. <https://pubmed.ncbi.nlm.nih.gov/37454160/>

- 
67. Pauly, M. D., Weis-Torres, S., Hayden, T. M., Ganova-Raeva, L. M., & Kamili, S. (2023). Development of simple, rapid, and sensitive methods for detection of hepatitis C virus RNA from whole blood using reverse transcription loop-mediated isothermal amplification. *Journal of Clinical Microbiology*. <https://doi.org/10.1128/JCM.00771-23>
  68. Agarwal, S., Hamidzadeh, M., & Bier, F. F. (2023). Detection of Reverse Transcriptase LAMP-Amplified Nucleic Acid from Oropharyngeal Viral Swab Samples Using Biotinylated DNA Probes through a Lateral Flow Assay. *Biosensors 2023*, Vol. 13, Page 988, 13(11), 988. <https://doi.org/10.3390/BIOS13110988>
  69. Husseini, A. A., Yazdani, A. M., Ghadiri, F., & Şişman, A. (2023). Developing a surface acoustic wave-induced microfluidic cell lysis device for point-of-care DNA amplification. *Engineering in Life Sciences*, 2300230. <https://doi.org/10.1002/ELSC.202300230>

### 3. Recombinase Polymerase Amplification (RPA)

1. Ahmed, F. A., Larrea-Sarmiento, A., Alvarez, A. M., & Arif, M. (2018). Genome-informed diagnostics for specific and rapid detection of *Pectobacterium* species using recombinase polymerase amplification coupled with a lateral flow device. *Scientific Reports*, 8(1). <https://doi.org/10.1038/s41598-018-34275-0>
2. An, X., Zhao, Y., Cui, J., Liu, Q., Yu, L., Zhan, X., Zhang, W., He, L., & Zhao, J. (2021). Recombinase polymerase amplification lateral flow dipstick (RPA-LF) detection of *Babesia orientalis* in water buffalo (*Bubalus bubalis*, Linnaeus, 1758). *Veterinary parasitology*, 296, 109479. <https://doi.org/10.1016/j.vetpar.2021.109479>
3. Arif, M., Busot, G. Y., Mann, R., Rodoni, B., & Stack, J. P. (2021). Field-Deployable Recombinase Polymerase Amplification Assay for Specific, Sensitive and Rapid Detection of the US Select Agent and Toxigenic Bacterium, *Rathayibacter toxicus*. *Biology*, 10(7), 620. <https://doi.org/10.3390/biology10070620>
4. Azinheiro, S., Carvalho, J., Prado, M., & Garrido-Maestu, A. (2020). Application of recombinase polymerase amplification with lateral flow for a naked-eye detection of *listeria monocytogenes* on food processing surfaces. *Foods*, 9(9). <https://doi.org/10.3390/foods9091249>
5. Boyle, D. S., Lehman, D. A., Lillis, L., Peterson, D., Singhal, M., Armes, N., Parker, M., Piepenburg, O., & Overbaugh, J. (2013). Rapid detection of HIV-1 proviral DNA for early infant diagnosis using recombinase polymerase amplification. *mBio*, 4(2), e00135-13. <https://doi.org/10.1128/mBio.00135-13>
6. Castellanos-Gonzalez, A., Saldarriaga, O. A., Tartaglino, L., Gacek, R., Temple, E., Sparks, H., ... Travi, B. L. (2015). A novel molecular test to diagnose canine visceral leishmaniasis at the point of care. *American Journal of Tropical Medicine and Hygiene*, 93(5), 970–975. <https://doi.org/10.4269/ajtmh.15-0145>
7. Chao, C. C., Belinskaya, T., Zhang, Z., & Ching, W. M. (2015). Development of recombinase polymerase amplification assays for detection of *orientia tsutsugamushi* or *rickettsia typhi*. *PLoS Neglected Tropical Diseases*, 9(7), 1–21. <https://doi.org/10.1371/journal.pntd.0003884>
8. Chen, W., Yu, J., Xu, H., Lu, X., Dai, T., Tian, Y., Shen, D., Dou, D. (2021). Combining simplified DNA extraction technology and recombinase polymerase amplification assay for rapid and equipment-free detection of citrus pathogen *Phytophthora parasitica*. *Journal of Integrative Agriculture*, 20(10), 2696–2705. doi: 10.1016/S2095-3119(20)63459-1
9. Chia, J. Y., Tay, Y. P., Poh, D., Tay, B. H., Koh, E., Teo, J., ... Lee, C. L. K. (2019, August 10). Development and evaluation of a rapid on-site water pathogen detection system for water quality monitoring. *BioRxiv*. <https://doi.org/10.1101/731778>
10. Cordray, M. S., & Richards-Kortum, R. R. (2015). A paper and plastic device for the combined isothermal amplification and lateral flow detection of *Plasmodium* DNA. *Malaria Journal*, 14(1). <https://doi.org/10.1186/s12936-015-0995-6>
11. Crannell, Z. A., Castellanos-Gonzalez, A., Irani, A., Rohrman, B., White, A. C., & Richards-Kortum, R. (2014). Nucleic acid test to diagnose cryptosporidiosis: Lab assessment in animal and patient specimens. *Analytical Chemistry*, 86(5), 2565–2571. <https://doi.org/10.1021/ac403750z>

12. Crannell, Z. A., Rohrman, B., & Richards-Kortum, R. (2014). Equipment-free incubation of recombinase polymerase amplification reactions using body heat. *PLoS ONE*, 9(11). <https://doi.org/10.1371/journal.pone.0112146>
13. Cui, J., Zhao, Y., Sun, Y., Yu, L., Liu, Q., Zhan, X., ... Zhao, J. (2018). Detection of *Babesia gibsoni* in dogs by combining recombinase polymerase amplification (RPA) with lateral flow (LF) dipstick. *Parasitology Research*, 117(12), 3945–3951. <https://doi.org/10.1007/s00436-018-6104-3>
14. Dai, T., Hu, T., Yang, X., Shen, D., Jiao, B., Tian, W., & Xu, Y. (2019). A recombinase polymerase amplification lateral flow dipstick assay for rapid detection of the quarantine citrus pathogen in China, *Phytophthora hibernalis*. *PeerJ*, 2019(11). <https://doi.org/10.7717/peerj.8083>
15. Dai, T., Wang, A., Yang, X., Yu, X., Tian, W., Xu, Y., & Hu, T. (2020). PHYCI\_587572: An RxLR effector gene and new biomarker in a recombinase polymerase amplification assay for rapid detection of *Phytophthora cinnamomi*. *Forests*, 11(3). <https://doi.org/10.3390/f11030306>
16. Dai, T., Yang, X., Hu, T., Jiao, B., Xu, Y., Zheng, X., & Shen, D. (2019). Comparative evaluation of a novel recombinase polymerase amplification-lateral flow dipstick (Rpa-lfd) assay, lamp, conventional pcr, and leaf-disc baiting methods for detection of *phytophthora sojae*. *Frontiers in Microbiology*, 10(AUG). <https://doi.org/10.3389/fmicb.2019.01884>
17. Escadafal, C., Faye, O., Sall, A. A., Faye, O., Weidmann, M., Strohmeier, O., ... Patel, P. (2014). Rapid Molecular Assays for the Detection of Yellow Fever Virus in Low-Resource Settings. *PLoS Neglected Tropical Diseases*, 8(3). <https://doi.org/10.1371/journal.pntd.0002730>
18. Feng, Z., Chu, X., Han, M., Yu, C., Jiang, Y., Wang, H., Lu, L., & Xu, D. (2022). Rapid visual detection of *Micropterus salmoides* rhabdovirus using recombinase polymerase amplification combined with lateral flow dipsticks. *Journal of fish diseases*, 10.1111/jfd.13575. Advance online publication. <https://doi.org/10.1111/jfd.13575>
19. Friedrich, R., Rappold, E., Bogdan, C., & Held, J. (2018). Comparative analysis of the wako B-glucan test and the fungitell assay for diagnosis of candidemia and *Pneumocystis jirovecii* pneumonia. *Journal of Clinical Microbiology*, 56(9). <https://doi.org/10.1128/JCM>
20. Gao, W., Huang, H., Zhu, P., Yan, X., Fan, J., Jiang, J., & Xu, J. (2018). Recombinase polymerase amplification combined with lateral flow dipstick for equipment-free detection of *Salmonella* in shellfish. *Bioprocess and Biosystems Engineering*, 41(5), 603–611. <https://doi.org/10.1007/s00449-018-1895-2>
21. Gao, X., Liu, X., Zhang, Y., Wei, Y., & Wang, Y. (2020). Rapid and visual detection of porcine deltacoronavirus by recombinase polymerase amplification combined with a lateral flow dipstick. *BMC Veterinary Research*, 16(1). <https://doi.org/10.1186/s12917-020-02341-3>
22. Guo, Q., Zhou, K., Chen, C., Yue, Y., Shang, Z., Zhou, K., Fu, Z., Liu, J., Lin, J., Xia, C., Tang, W., Cong, X., Sun, X., & Hong, Y. (2021). Development of a Recombinase Polymerase Amplification Assay for *Schistosomiasis Japonica* Diagnosis in the Experimental Mice and Domestic Goats. *Frontiers in cellular and infection microbiology*, 11, 791997. <https://doi.org/10.3389/fcimb.2021.791997>
23. Gupta, S. K., Deng, Q., Gupta, T. B., Maclean, P., Jores, J., Heiser, A., & Wedlock, D. N. (2021). Recombinase polymerase amplification assay combined with a dipstick-readout for rapid detection of *Mycoplasma ovipneumoniae* infections. *PLoS one*, 16(2), e0246573. <https://doi.org/10.1371/journal.pone.0246573>

24. Hou, P., Wang, H., Zhao, G., He, C., & He, H. (2017). Rapid detection of infectious bovine Rhinotracheitis virus using recombinase polymerase amplification assays. *BMC Veterinary Research*, 13(1), 1–9. <https://doi.org/10.1186/s12917-017-1284-0>
25. Hou, P., Zhao, G., Wang, H., He, C., & He, H. (2018). Rapid detection of bovine viral diarrhea virus using recombinase polymerase amplification combined with lateral flow dipstick assays in bulk milk. *Vet. Arhiv*, 88(5), 627–642. <https://doi.org/10.24099/vet.arhiv.0145>
26. Hsu, Y. H., Yang, W. C., & Chan, K. W. (2021). Bushmeat Species Identification: Recombinase Polymerase Amplification (RPA) Combined with Lateral Flow (LF) Strip for Identification of Formosan Reeves' Muntjac (*Muntiacus reevesi micrurus*). *Animals : an open access journal from MDPI*, 11(2), 426. <https://doi.org/10.3390/ani11020426>
27. Hu, S., Zhong, H., Huang, W., Zhan, W., Yang, X., Tang, B., ... Luo, M. (2019). Rapid and visual detection of Group B streptococcus using recombinase polymerase amplification combined with lateral flow strips. *Diagnostic Microbiology and Infectious Disease*, 93(1), 9–13. <https://doi.org/10.1016/j.diagmicrobio.2018.07.011>
28. James, A. S., Todd, S., Pollak, N. M., Marsh, G. A., & Macdonald, J. (2018). Ebolavirus diagnosis made simple, comparable and faster than molecular detection methods: Preparing for the future. *Virology Journal*, 15(1). <https://doi.org/10.1186/s12985-018-0985-8> RNA
29. Jaroenram, W., & Owens, L. (2014). Recombinase polymerase amplification combined with a lateral flow dipstick for discriminating between infectious *Penaeus stylirostris* densovirus and virus-related sequences in shrimp genome. *Journal of virological methods*, 208, 144–151. <https://doi.org/10.1016/j.jviromet.2014.08.006>
30. Jia, T., Yu, Y., & Wang, Y. (2020). A recombinase polymerase amplification-based lateral flow strip assay for rapid detection of genogroup II noroviruses in the field. *Archives of Virology*, 165(12), 2767–2776. <https://doi.org/10.1007/s00705-020-04798-x> RNA
31. Kersting, S., Rausch, V., Bier, F. F., & Von Nickisch-Roseneck, M. (2014). Rapid detection of *Plasmodium falciparum* with isothermal recombinase polymerase amplification and lateral flow analysis. *Malaria Journal*, 13(1). <https://doi.org/10.1186/1475-2875-13-99>
32. Lai, M. Y., Ooi, C. H., & Lau, Y. L. (2018). Recombinase polymerase amplification combined with a lateral flow strip for the detection of *plasmodium knowlesi*. *American Journal of Tropical Medicine and Hygiene*, 98(3), 700–703. <https://doi.org/10.4269/ajtmh.17-0738> multiplex
33. Lau, Y. L., Ismail, I. B., Mustapa, N., Lai, M. Y., Tuan Soh, T. S., Haji Hassan, A., Peariasamy, K. M., Lee, Y. L., Abdul Kahar, M., Chong, J., & Goh, P. P. (2021). Development of a reverse transcription recombinase polymerase amplification assay for rapid and direct visual detection of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). *PloS one*, 16(1), e0245164. <https://doi.org/10.1371/journal.pone.0245164> RNA
34. Lee, H. J., Cho, I. S., Ju, H. J., & Jeong, R. D. (2021). Rapid and visual detection of tomato spotted wilt virus using recombinase polymerase amplification combined with lateral flow strips. *Molecular and cellular probes*, 57, 101727. <https://doi.org/10.1016/j.mcp.2021.101727>
35. Li, J., Feng, M., & Yu, X. (2021). Rapid detection of *mcyG* gene of microcystins producing cyanobacteria in water samples by recombinase polymerase amplification combined with lateral flow strips. *Journal of water and health*, 19(6), 907–917. <https://doi.org/10.2166/wh.2021.091>

36. Li, T. T., Wang, J. L., Zhang, N. Z., Li, W. H., Yan, H. Bin, Li, L., ... Fu, B. Q. (2019). Rapid and visual detection of *Trichinella* Spp. Using a lateral flow strip-based recombinase polymerase amplification (LF-RPA) assay. *Frontiers in Cellular and Infection Microbiology*, 9(JAN), 1–8. <https://doi.org/10.3389/fcimb.2019.00001>
37. Li, Z., Torres, J. E. P., Goossens, J., Stijlemans, B., Sterckx, Y. G. J., & Magez, S. (2020). Development of a recombinase polymerase amplification lateral flow assay for the detection of active *Trypanosoma evansi* infections. *PLoS Neglected Tropical Diseases*, 14(2). <https://doi.org/10.1371/journal.pntd.0008044>
38. Liu, D., Shen, H., Zhang, Y., Shen, D., Zhu, M., Song, Y., Zhu, Z., & Yang, C. (2021). A microfluidic-integrated lateral flow recombinase polymerase amplification (MI-IF-RPA) assay for rapid COVID-19 detection. *Lab on a chip*, 21(10), 2019–2026. <https://doi.org/10.1039/d0lc01222j>
39. Liu, M. zhi, Han, X. hu, Yao, L. quan, Zhang, W. kui, Liu, B. shan, & Chen, Z. liang. (2019). Development and application of a simple recombinase polymerase amplification assay for rapid point-of-care detection of feline herpesvirus type 1. *Archives of Virology*, 164(1), 195–200. <https://doi.org/10.1007/s00705-018-4064-7>
40. Liu, W., Liu, H. X., Zhang, L., Hou, X. X., Wan, K. L., & Hao, Q. (2016). A novel isothermal assay of *Borrelia burgdorferi* by recombinase polymerase amplification with lateral flow detection. *International Journal of Molecular Sciences*, 17(8). <https://doi.org/10.3390/ijms17081250>
41. Liu, Y., Wang, X. Y., Wei, X. M., Gao, Z. T., & Han, J. P. (2018). Rapid Authentication of Ginkgo biloba Herbal Products Using the Recombinase Polymerase Amplification Assay. *Scientific Reports*, 8(1). <https://doi.org/10.1038/s41598-018-26402-8>
42. Lu, X., Xu, H., Song, W., Yang, Z., Yu, J., Tian, Y., Jiang, M., Shen, D., & Dou, D. (2021). Rapid and simple detection of *Phytophthora cactorum* in strawberry using a coupled recombinase polymerase amplification-lateral flow strip assay. *Phytopathology research*, 3(1), 12. <https://doi.org/10.1186/s42483-021-00089-8>
43. Ma, Q., Yao, J., Yuan, S., Liu, H., Wei, N., Zhang, J., & Shan, W. (2019). Development of a lateral flow recombinase polymerase amplification assay for rapid and visual detection of *Cryptococcus neoformans*/*C. gattii* in cerebral spinal fluid. *BMC Infectious Diseases*, 19(1), 1–9. <https://doi.org/10.1186/s12879-019-3744-6>
44. Mancuso, C. P., Lu, Z. X., Qian, J., Boswell, S. A., & Springer, M. (2021). A Semi-Quantitative Isothermal Diagnostic Assay Utilizing Competitive Amplification. *Analytical chemistry*, 93(27), 9541–9548. <https://doi.org/10.1021/acs.analchem.1c01576> **RNA**
45. Nair, G., Rebolledo, M., Clinton White, A., Crannell, Z., Rebecca Richards-Kortum, R., Elizabeth Pinilla, A., ... Castellanos-Gonzalez, A. (2015). Detection of *entamoeba histolytica* by recombinase polymerase amplification. *American Journal of Tropical Medicine and Hygiene*, 93(3), 591–595. <https://doi.org/10.4269/ajtmh.15-0276>
46. Nie, Z., Zhao, Y., Shu, X., Li, D., Ao, Y., Li, M., Wang, S., Cui, J., An, X., Zhan, X., He, L., Liu, Q., & Zhao, J. (2021). Recombinase polymerase amplification with lateral flow strip for detecting *Babesia microti* infections. *Parasitology international*, 83, 102351. <https://doi.org/10.1016/j.parint.2021.102351>

47. Panpru, P., Srisrattakarn, A., Panthasri, N., Tippayawat, P., Chanawong, A., Tavichakorntrakool, R., Daduang, J., Wonglakorn, L., & Lulitanond, A. (2021). Rapid detection of Enterococcus and vancomycin resistance using recombinase polymerase amplification. *PeerJ*, 9, e12561. <https://doi.org/10.7717/peerj.12561>
48. Peng, Y., Zheng, X., Kan, B., Li, W., Zhang, W., Jiang, T., ... Qin, A. (2019). Rapid detection of Burkholderia pseudomallei with a lateral flow recombinase polymerase amplification assay. *PLoS ONE*, 14(7). <https://doi.org/10.1371/journal.pone.0213416>
49. Petrucci, S., Costa, C., Broyles, D., Kaur, A., Dikici, E., Daunert, S., & Deo, S. K. (2021). Monitoring Pathogenic Viable E. coli O157:H7 in Food Matrices Based on the Detection of RNA Using Isothermal Amplification and a Paper-Based Platform. *Analytical chemistry*, 10.1021/acs.analchem.1c04305. Advance online publication. <https://doi.org/10.1021/acs.analchem.1c04305>
50. Piepenburg, O., Williams, C. H., Stemple, D. L., & Armes, N. A. (2006). DNA detection using recombination proteins. *PLoS Biology*, 4(7), 1115–1121. <https://doi.org/10.1371/journal.pbio.0040204>
51. Qi, Y., Shao, Y., Rao, J., Shen, W., Yin, Q., Li, X., ... Li, Y. (2018). Development of a rapid and visual detection method for Rickettsia rickettsii combining recombinase polymerase assay with lateral flow test. *PLoS ONE*, 13(11). <https://doi.org/10.1371/journal.pone.0207811>
52. Qi, Y., Yin, Q., Shao, Y., Cao, M., Li, S., Chen, H., ... Li, Y. (2018). Development of a rapid and visual nucleotide detection method for a Chinese epidemic strain of Orientia tsutsugamushi based on recombinase polymerase amplification assay and lateral flow test. *International Journal of Infectious Diseases*, 70, 42–50. <https://doi.org/10.1016/j.ijid.2018.03.003>
53. Qi, Y., Yin, Q., Shao, Y., Li, S., Chen, H., Shen, W., ... Li, Y. (2018). Rapid and Visual Detection of Coxiella burnetii Using Recombinase Polymerase Amplification Combined with Lateral Flow Strips. *BioMed Research International*, 2018. <https://doi.org/10.1155/2018/6417354>
54. Qian, J., Boswell, S. A., Chidley, C., Lu, Z. xiang, Pettit, M. E., Gaudio, B. L., ... Springer, M. (2020). An enhanced isothermal amplification assay for viral detection. *Nature Communications*, 11(1). <https://doi.org/10.1038/s41467-020-19258-y>
55. Qin, J., Yin, Z., Shen, D., Chen, H., Chen, X., Cui, X., Chen, H. (2021). Development of a Recombinase Polymerase Amplification Combined with Lateral Flow Dipstick Assay for Rapid and Sensitive Detection of Bean Common Mosaic Virus. *Phytopathology Research* (2021), 3 (3). <https://doi.org/10.1186/s42483-021-00080-3>
56. Rames, E. K., & Macdonald, J. (2019). Rapid assessment of viral water quality using a novel recombinase polymerase amplification test for human adenovirus. *Applied Microbiology and Biotechnology*, 103(19), 8115–8125. <https://doi.org/10.1007/s00253-019-10077-w>
57. Ravindran, V. B., Khallaf, B., Surapaneni, A., Crosbie, N. D., Soni, S. K., & Ball, A. S. (2020). Detection of Helminth Ova in Wastewater Using Recombinase Polymerase Amplification Coupled to Lateral Flow Strips. *Water*, 12(3), 691. <https://doi.org/10.3390/w12030691>
58. Rohrman, B. A., & Richards-Kortum, R. R. (2012). A paper and plastic device for performing recombinase polymerase amplification of HIV DNA. *Lab on a Chip*, 12(17), 3082–3088. <https://doi.org/10.1039/c2lc40423k>



59. Rosser, A., Rollinson, D., Forrest, M., & Webster, B. L. (2015). Isothermal Recombinase Polymerase amplification (RPA) of *Schistosoma haematobium* DNA and oligochromatographic lateral flow detection. *Parasites and Vectors*, 8(1). <https://doi.org/10.1186/s13071-015-1055-3>
60. Saldarriaga, O. A., Castellanos-Gonzalez, A., Porrozzi, R., Baldeviano, G. C., Lescano, A. G., de Los Santos, M. B., ... Travi, B. L. (2016). An Innovative Field-Applicable Molecular Test to Diagnose Cutaneous Leishmania Viannia spp. Infections. *PLoS Neglected Tropical Diseases*, 10(4). <https://doi.org/10.1371/journal.pntd.0004638>
61. Saxena, A., Pal, V., Tripathi, N. K., & Goel, A. K. (2019). Development of a rapid and sensitive recombinase polymerase amplification-lateral flow assay for detection of *Burkholderia mallei*. *Transboundary and Emerging Diseases*, 66(2), 1016–1022. <https://doi.org/10.1111/tbed.13126>
62. Soliman, H., & El-Matbouli, M. (2018). Rapid detection and differentiation of carp oedema virus and cyprinid herpes virus-3 in koi and common carp. *Journal of Fish Diseases*, 41(5), 761–772. <https://doi.org/10.1111/jfd.12774> **multiplex**
63. Soliman, H., Kumar, G., & El-Matbouli, M. (2018). Recombinase polymerase amplification assay combined with a lateral flow dipstick for rapid detection of *Tetracapsuloides bryosalmonae*, the causative agent of proliferative kidney disease in salmonids. *Parasites and Vectors*, 11(1), 1–8. <https://doi.org/10.1186/s13071-018-2825-5>
64. Srisrattakarn, A., Tippayawat, P., Chanawong, A., Tavichakorntrakool, R., Daduang, J., Wonglakorn, L., ... Lulitanond, A. (2020). Direct detection of methicillin-resistant in *Staphylococcus* spp. in positive blood culture by isothermal recombinase polymerase amplification combined with lateral flow dipstick assay. *World Journal of Microbiology and Biotechnology*, 36(11). <https://doi.org/10.1007/s11274-020-02938-8>
65. Sun, K., Xing, W., Yu, X., Fu, W., Wang, Y., Zou, M., ... Xu, D. (2016). Recombinase polymerase amplification combined with a lateral flow dipstick for rapid and visual detection of *Schistosoma japonicum*. *Parasites and Vectors*, 9(1), 1–9. <https://doi.org/10.1186/s13071-016-1745-5>
66. Szántó-Egész, R., Jánosi, A., Mohr, A., Szalai, G., Szabó, E. K., Micsinai, A., ... Zsolnai, A. (2016). Breed-Specific Detection of Mangalica Meat in Food Products. *Food Analytical Methods*, 9(4), 889–894. <https://doi.org/10.1007/s12161-015-0261-0>
67. Tu, P.-A. (2018). A Recombinase Polymerase Amplification Lateral Flow Dipstick for Field Diagnosis of Bovine Leukemia Virus Infection and its Effectiveness Compared to iPCR. and ELISA. *Journal of Antivirals & Antiretrovirals*, 10(3). <https://doi.org/10.4172/1948-5964.1000178>
68. Wang, H., Hou, P., Zhao, G., Yu, L., Gao, Y. W., & He, H. (2018). Development and evaluation of serotype-specific recombinase polymerase amplification combined with lateral flow dipstick assays for the diagnosis of foot-and-mouth disease virus serotype A, O and Asia1. *BMC veterinary research*, 14(1), 359. <https://doi.org/10.1186/s12917-018-1644-4>
69. Wang, H., Sun, M., Xu, D., Podok, P., Xie, J., Jiang, Y., & Lu, L. (2018). Rapid visual detection of cyprinid herpesvirus 2 by recombinase polymerase amplification combined with a lateral flow dipstick. *Journal of Fish Diseases*, 41(8), 1201–1206. <https://doi.org/10.1111/jfd.12808>

70. Wang, J., Li, R., Sun, X., Liu, L., Hao, X., Wang, J., & Yuan, W. (2020). Development and validation of the isothermal recombinase polymerase amplification assays for rapid detection of *Mycoplasma ovipneumoniae* in sheep. *BMC Veterinary Research*, 16(1). <https://doi.org/10.1186/s12917-020-02387-3>
71. Wu, L., Ye, L., Wang, Z., Cui, Y., & Wang, J. (2019). Utilization of recombinase polymerase amplification combined with a lateral flow strip for detection of *Perkinsus behaiensis* in the oyster *Crassostrea hongkongensis*. *Parasites & Vectors*, 12(1), 360. <https://doi.org/10.1186/s13071-019-3624-3>
72. Wu, Y. D., Zhou, D. H., Zhang, L. X., Zheng, W. Bin, Ma, J. G., Wang, M., ... Xu, M. J. (2016). Recombinase polymerase amplification (RPA) combined with lateral flow (LF) strip for equipment-free detection of *Cryptosporidium* spp. oocysts in dairy cattle feces. *Parasitology Research*, 115(9), 3551–3555. <https://doi.org/10.1007/s00436-016-5120-4>
73. Xie, J., Yang, X., Duan, L., Chen, K., Liu, P., Zhan, W., Zhang, C., Zhao, H., Wei, M., Tang, Y., & Luo, M. (2021). One-Step Reverse-Transcription Recombinase Polymerase Amplification Using Lateral Flow Strips for the Detection of Coxsackievirus A6. *Frontiers in microbiology*, 12, 629533. <https://doi.org/10.3389/fmicb.2021.629533> **RNA**
74. Yang, S., Wang, Q. Y., Tan, B., Shi, P. F., Qiao, L. J., Li, Z. J., Liu, K. X., Cao, Z. G., Zhang, S. Q., & Sun, F. Y. (2022). A lateral flow dipstick combined with reverse transcription recombinase polymerase amplification for rapid and visual detection of the BVDV and BPIV3. *Journal of virological methods*, 299, 114343. <https://doi.org/10.1016/j.jviromet.2021.114343>
75. Yang, Y., Qin, X., Song, Y., Zhang, W., Hu, G., Dou, Y., ... Zhang, Z. (2017). Development of real-time and lateral flow strip reverse transcription recombinase polymerase Amplification assays for rapid detection of peste des petits ruminants virus. *Virology Journal*, 14(1), 1–10. <https://doi.org/10.1186/s12985-017-0688-6> **RNA**
76. Yang, Y., Qin, X., Sun, Y., Cong, G., Li, Y., & Zhang, Z. (2017). Development of Isothermal Recombinase Polymerase Amplification Assay for Rapid Detection of Porcine Circovirus Type 2. *BioMed Research International*, 2017. <https://doi.org/10.1155/2017/8403642>
77. Yang, Y., Qin, X., Wang, G., Jin, J., Shang, Y., & Zhang, Z. (2016). Development of an isothermal amplification-based assay for rapid visual detection of an Orf virus. *Virology Journal*, 13(1), 1–6. <https://doi.org/10.1186/s12985-016-0502-x>
78. Yang, Y., Qin, X., Zhang, W., Li, Y., & Zhang, Z. (2016). Rapid and specific detection of porcine parvovirus by isothermal recombinase polymerase amplification assays. *Molecular and Cellular Probes*, 30(5), 300–305. <https://doi.org/10.1016/j.mcp.2016.08.011>
79. Yang, Y., Qin, X., Zhang, X., Zhao, Z., Zhang, W., Zhu, X., ... Zhang, Z. (2017). Development of real-time and lateral flow dipstick recombinase polymerase amplification assays for rapid detection of goatpox virus and sheeppox virus. *Virology Journal*, 14(1), 1–8. <https://doi.org/10.1186/s12985-017-0792-7>
80. Yu, J., Shen, D., Dai, T., Lu, X., Xu, H., & Dou, D. (2019). Rapid and equipment-free detection of *Phytophthora capsici* using lateral flow strip-based recombinase polymerase amplification assay. *Letters in Applied Microbiology*, 69(1), 64–70. <https://doi.org/10.1111/lam.13166>

81. Zhai, Y., Ma, P., Fu, X., Zhang, L., Cui, P., Li, H., ... Yang, X. (2020). A recombinase polymerase amplification combined with lateral flow dipstick for rapid and specific detection of African swine fever virus. *Journal of Virological Methods*, 285. <https://doi.org/10.1016/j.jviromet.2020.113885>
82. Zhang, T. T., Liu, M. Z., Yin, R. H., Yao, L. Q., Liu, B. S., & Chen, Z. L. (2019). Rapid and simple detection of *Glaesserella parasuis* in synovial fluid by recombinase polymerase amplification and lateral flow strip. *BMC Veterinary Research*, 15(1), 1–7. <https://doi.org/10.1186/s12917-019-2039-x>
83. Zhao, C., Sun, F., Li, X., Lan, Y., Du, L., Zhou, T., & Zhou, Y. (2019). Reverse transcription-recombinase polymerase amplification combined with lateral flow strip for detection of rice black-streaked dwarf virus in plants. *Journal of Virological Methods*, 263, 96–100. <https://doi.org/10.1016/j.jviromet.2018.11.001>
84. Zhao, G., He, H., & Wang, H. (2019). Use of a recombinase polymerase amplification commercial kit for rapid visual detection of *Pasteurella multocida*. *BMC Veterinary Research*, 15(1), 1–8. <https://doi.org/10.1186/s12917-019-1889-6>
85. Zhao, G., Hou, P., Huan, Y., He, C., Wang, H., & He, H. (2018). Development of a recombinase polymerase amplification combined with a lateral flow dipstick assay for rapid detection of the *Mycoplasma bovis*. *BMC Veterinary Research*, 14(1). <https://doi.org/10.1186/s12917-018-1703-x> RNA
86. Zhao, G., Wang, H., Hou, P., He, C., & He, H. (2018). Rapid visual detection of *Mycobacterium avium* subsp. *Paratuberculosis* by recombinase polymerase amplification combined with a lateral flow dipstick. *Journal of Veterinary Science*, 19(2), 242–250. <https://doi.org/10.4142/jvs.2018.19.2.242>
87. Zhao, G., Wang, H., Hou, P., Xia, X., & He, H. (2018). A lateral flow dipstick combined with reverse transcription recombinase polymerase amplification for rapid and visual detection of the bovine respirovirus 3. *Molecular and cellular probes*, 41, 22–26. <https://doi.org/10.1016/j.mcp.2018.08.004>
88. Zhou, Y., Zheng, H. Y., Jiang, D. M., Liu, M., Zhang, W., & Yan, J. Y. (2021). A rapid detection of tomato yellow leaf curl virus using recombinase polymerase amplification-lateral flow dipstick assay. *Letters in applied microbiology*, 10.1111/lam.13611. Advance online publication. <https://doi.org/10.1111/lam.13611>
89. Denti, M. A., Park, H. G., Petrucci, S., Dikici, E., Daunert, S., Deo, S. K., & Macdonald, J. T. (2022). Isothermal Amplification and Lateral Flow Nucleic Acid Test for the Detection of Shiga Toxin-Producing Bacteria for Food Monitoring. *Chemosensors* 2022, Vol. 10, Page 210, 10(6), 210. <https://doi.org/10.3390/CHEMOSENSORS10060210>
90. Desselberger, U., Davidson, A., Pewlao, S., Phanthong, S., Kong-Ngoen, T., Santajit, S., Tunyong, W., Buranasinsup, S., Kaeoket, K., Thavorasak, T., Pumirat, P., Sookrung, N., Chaicumpa, W., & Indrawattana, N. (2022). Development of a Rapid Reverse Transcription-Recombinase Polymerase Amplification Couple Nucleic Acid Lateral Flow Method for Detecting Porcine Epidemic Diarrhoea Virus. *Biology* 2022, Vol. 11, Page 1018, 11(7), 1018. <https://doi.org/10.3390/BIOLOGY11071018>
91. Farrera-Soler, L., Gonse, A., Kim, K. T., Barluenga, S., & Winssinger, N. (2022). Combining recombinase polymerase amplification and DNA-templated reaction for SARS-CoV-2 sensing with dual fluorescence and lateral flow assay output. *Biopolymers*, 113(4), e23485. <https://doi.org/10.1002/BIP.23485>
92. Kim, N. K., Lee, H. J., Kim, S. M., & Jeong, R. D. (2022). Rapid and Visual Detection of Barley Yellow Dwarf Virus by Reverse Transcription Recombinase Polymerase Amplification with Lateral Flow Strips. *The Plant Pathology Journal*, 38(2), 159–166. <https://doi.org/10.5423/PPJ.NT.01.2022.0009>

93. Mayran, C., Foulongne, V., de Perre, P. van, Fournier-Wirth, C., Molès, J. P., & Cantaloube, J. F. (2022). Rapid Diagnostic Test for Hepatitis B Virus Viral Load Based on Recombinase Polymerase Amplification Combined with a Lateral Flow Read-Out. *Diagnostics*, 12(3), 621. <https://doi.org/10.3390/DIAGNOSTICS12030621/S1>
94. Pang, J., Zhao, C., Liu, Z., Lu, Q., He, X., Weng, S., & Jianguo, \*. (2022). Rapid visual detection of *Enterocytozoon hepatopenaei* by recombinase polymerase amplification combined with a lateral flow dipstick. *Authorea Preprints*. <https://doi.org/10.22541/AU.164997007.71272524/V1>
95. Preena, P. G., Kumar, T. V. A., Johny, T. K., Dharmaratnam, A., & Swaminathan, T. R. (2022). Quick hassle-free detection of cyprinid herpesvirus 2 (CyHV-2) in goldfish using recombinase polymerase amplification-lateral flow dipstick (RPA-LFD) assay. *Aquaculture International*, 30(3), 1211–1220. <https://doi.org/10.1007/S10499-021-00806-2/FIGURES/3>
96. Qi, Y., Li, W., Li, X., Shen, W., Lv, R., Lu, N., Li, J., Zhuang, S., Xu, Y., Gui, Q., Shen, H., & Li, Y. (2022). Rapid Visual Detection of Pathogenic *Streptococcus suis* Type 2 through a Recombinase Polymerase Amplification Assay Coupled with Lateral Flow Test. *Zoonoses*, 2(1). <https://doi.org/10.15212/ZOONOSES-2022-0015>
97. Qiao, M., Zhang, L., Chang, J., Li, H., Li, J., Wang, W., Yuan, G., & Su, J. (2022). Rapid and sensitive detection of pathogenic *Elizabethkingia miricola* in black spotted frog by RPA-LFD and fluorescent probe-based RPA. *Fish and Shellfish Immunology Reports*, 3, 100059. <https://doi.org/10.1016/J.FSIREP.2022.100059>
98. Srisrattakarn, A., Panpru, P., Tippayawat, P., Chanawong, A., Tavichakorntrakool, R., Daduang, J., Wonglakorn, L., & Id, A. L. (2022). Rapid detection of methicillin-resistant *Staphylococcus aureus* in positive blood-cultures by recombinase polymerase amplification combined with lateral flow strip. *PLOS ONE*, 17(6), e0270686. <https://doi.org/10.1371/JOURNAL.PONE.0270686>
99. Xia, W., Chen, K., Liu, W., Yin, Y., Yao, Q., Ban, Y., Pu, Y., Zhan, X., Bian, H., Yu, S., Han, K., Yang, L., Wang, H., & Fan, Z. (2022). Rapid and visual detection of *Mycoplasma synoviae* by recombinase-aided amplification assay combined with a lateral flow dipstick. *Poultry Science*, 101(7), 101860. <https://doi.org/10.1016/J.PSJ.2022.101860>
100. Yang, N., Ji, Y., Wang, A., Tang, J., Liu, S., Zhang, X., Xu, L., & He, Y. (2022). An Integrated Nucleic Acid Detection Method Based on Microfluidic Chip for Collection and Culture of Rice False Smut Spores. *SSRN Electronic Journal*. <https://doi.org/10.2139/SSRN.4110832>
101. Zaiko, A. (2022). A Rapid Molecular Assay for Detecting the Mediterranean Fanworm *Sabella spallanzanii* Tried by Non-Scientist Users. <https://doi.org/10.3389/fmars.2022.861657>
102. Zou, X., Yuan, S., Dong, C., & Gao, Q. (2022). Development and evaluation of an isothermal recombinase polymerase amplification–lateral flow assay for rapid detection of strawberry vein banding virus in the field. *Crop Protection*, 158, 105994. <https://doi.org/10.1016/J.CROPRO.2022.105994>
103. Ahmed, M., Pollak, N. M., Hugo, L. E., van den Hurk, A. F., Hobson-Peters, J., Macdonald, J., & Paradkar, P. N. (2022). Rapid molecular assays for the detection of the four dengue viruses in infected mosquitoes. <https://doi.org/10.12688/gatesopenres.13534.1>
104. Xu, J., Wang, X., Yang, L., Kan, B., & Lu, X. (2018). Rapid detection of *mcr-1* by recombinase polymerase amplification. *Journal of Medical Microbiology*, 67(12), 1682–1688. <https://doi.org/10.1099/jmm.0.000865>
105. Ahmed, M., Nath, N. S., Hugo, L. E., Devine, G. J., Macdonald, J., & Pollak, N. M. (2022). Rapid detection of *kdr* mutation F1534C in *Aedes aegypti* using recombinase polymerase amplification and lateral flow dipsticks. *Pesticide Biochemistry and Physiology*, 187, 105209. <https://doi.org/10.1016/J.PESTBP.2022.105209>

106. Ahmed, M., Pollak, N. M., Devine, G. J., & Macdonald, J. (2022). Detection of a single nucleotide polymorphism for insecticide resistance using recombinase polymerase amplification and lateral flow dipstick detection. *Sensors and Actuators B: Chemical*, 367, 132085. <https://doi.org/10.1016/J.SNB.2022.132085>
107. Li, H., Zhang, L., Yu, Y., Ai, T., Zhang, Y., & Su, J. (2022). Rapid detection of *Edwardsiella ictaluri* in yellow catfish (*Pelteobagrus fulvidraco*) by real-time RPA and RPA-LFD. *Aquaculture*, 552, 737976. <https://doi.org/10.1016/J.AQUACULTURE.2022.737976>
108. Liang, X., Zhang, X., Haseeb, H. A., Tang, T., Shan, J., Yin, B., & Guo, W. (2022). Development and evaluation of a novel visual and rapid detection assay for toxigenic *Fusarium graminearum* in maize based on recombinase polymerase amplification and lateral flow analysis. *International Journal of Food Microbiology*, 372, 109682. <https://doi.org/10.1016/J.IJFOODMICRO.2022.109682>
109. Lin, Y., Lu, X., Liu, X., Xie, J., Pei, X., Yu, S., Zang, C., & Liang, C. (2022). Microscopic and LF-RPA assay approaches to the detection of the fungal peanut pathogen *Cercospora arachidicola*. *Physiological and Molecular Plant Pathology*, 118, 101799. <https://doi.org/10.1016/J.PMPP.2022.101799>
110. Wang, H., Dong, J., Zhang, T., Wang, F., Yang, R., Zhang, Y., & Zhao, X. (2022). A novel rapid detection of Senecavirus A using recombinase polymerase amplification (RPA) coupled with lateral flow (LF) dipstrip. *Analytical Biochemistry*, 646, 114627. <https://doi.org/10.1016/J.AB.2022.114627>
111. Zou, X., Dong, C., Ni, Y., Yuan, S., & Gao, Q. H. (2022). Rapid detection of strawberry mottle virus using reverse transcription recombinase polymerase amplification with lateral flow strip. *Journal of Virological Methods*, 307, 114566. <https://doi.org/10.1016/J.JVIROMET.2022.114566>
112. Zhang, S., Xie, H., Liu, M., Zheng, A., Yan, H., Duan, M., Wei, X., Teng, Z., Zhang, H., & Xia, X. (n.d.). Rapid Visual Detection of *Streptococcus suis* and *Actinobacillus pleuropneumoniae* Through Duplex Recombinase Polymerase Amplification Combined with Lateral Flow Dipsticks. <https://doi.org/10.9775/kvfd.2022.27691>
113. Zou, X., Dong, C., Ni, Y., & Gao, Q. (2022). Rapid Detection of Strawberry Mild Yellow Edge Virus with a Lateral Flow Strip Reverse Transcription Recombinase Polymerase Amplification Assay. *Current Microbiology* 2022 79:12, 79(12), 1–10. <https://doi.org/10.1007/S00284-022-03045-7>
114. Wang, X. ;, Lei, R. ;, Peng, H. ;, Jiang, R. ;, Shao, H. D. ;, Peng, J. J. ;, Wang, X., Lei, R., Peng, H., Jiang, R., Shao, H., Ge, J., & Peng, D. (2022). Rapid Diagnosis and Visual Detection of Potato Cyst Nematode (*Globodera rostochiensis*) Using Recombinase Polymerase Amplification Combination with Lateral Flow Assay Method (RPA-LFA). *Agronomy* 2022, Vol. 12, Page 2580, 12(10), 2580. <https://doi.org/10.3390/AGRONOMY12102580>
115. Hemwaranon, P., Srisrattakarn, A., Lulitanond, A., Tippayawat, P., Tavichakorntrakool, R., Wonglakorn, L., Daduang, J., & Chanawong, A. (2022). Recombinase Polymerase Amplification Combined with Lateral Flow Strip for Rapid Detection of OXA-48-like Carbapenemase Genes in Enterobacterales. *Antibiotics* 2022, Vol. 11, Page 1499, 11(11), 1499. <https://doi.org/10.3390/ANTIBIOTICS11111499>
116. Lai, F.-Y. ;, Chang, K.-C. ;, Chang, C.-S. ;, Wang, P.-H., Lai, F.-Y., Chang, K.-C., Chang, C.-S., & Wang, P.-H. (2022). Development of a Rapid Sex Identification Method for Newborn Pigeons Using Recombinase Polymerase Amplification and a Lateral-Flow Dipstick on Farm. *Animals* 2022, Vol. 12, Page 2969, 12(21), 2969. <https://doi.org/10.3390/ANI12212969>
117. Luo, N., Huang, H., & Jiang, H. (2022). Establishment of methods for rapid detection of *Prymnesium parvum* by recombinase polymerase amplification combined with a lateral flow dipstick. *Frontiers in Marine Science*, 0, 2158. <https://doi.org/10.3389/FMARS.2022.1032847>

118. Pollak ID, N. M., Fais, O., Kristoffersen, J., Phuthaworn, C., Knibb, W., & Macdonald, J. I. (2022). Rapid sample preparation and low-resource molecular detection of hepatopancreatic parvoviruses (HPV) by recombinase polymerase amplification lateral flow detection assay in shrimps (*Fenneropenaeus merguensis*). *PLOS ONE*, 17(11), e0276164. <https://doi.org/10.1371/JOURNAL.PONE.0276164>
119. Frigerio, J., Gorini, T., Palumbo, C., de Mattia, F., Labra, M., & Mezzasalma, V. (2022). A Fast and Simple DNA Mini-barcoding and RPA Assay Coupled with Lateral Flow Assay for Fresh and Canned Mackerel Authentication. *Food Analytical Methods*, 1, 1–10. <https://link.springer.com/article/10.1007/s12161-022-02429-6>
120. Onchan, W., Ritbamrung, O., Changtor, P., Pradit, W., Chomdej, S., Nganvongpanit, K., Siengdee, P., Suyasanant, U., & Buddhachat, K. (2022). Sensitive and rapid detection of *Babesia* species in dogs by recombinase polymerase amplification with lateral flow dipstick (RPA-LFD). *Scientific Reports* 2022 12:1, 12(1), 1–11. <https://doi.org/10.1038/s41598-022-25165-7>
121. Kim, D. H., Jeong, R. D., Choi, S., Ju, H. J., & Yoon, J. Y. (2022). Application of Rapid and Reliable Detection of Cymbidium Mosaic Virus by Reverse Transcription Recombinase Polymerase Amplification Combined with Lateral Flow Immunoassay. *The Plant Pathology Journal*, 38(6), 665–672. <https://doi.org/10.5423/PPJ.FT.10.2022.0147>
122. Park, S., & Chang, S. (2022). Development of recombinase polymerase amplification combined with lateral flow dipstick assay to detect hemolysin gene of *Vibrio vulnificus* in oysters. *Journal of Food Protection*, 85(12), 1716–1725. <https://doi.org/10.4315/JFP-21-455>
123. López-Tena, M., Farrera-Soler, L., Barluenga, S., & Winssinger, N. (2023). Pseudo-Complementary G:C Base Pair for Mixed Sequence dsDNA Invasion and Its Applications in Diagnostics (SARS-CoV-2 Detection). *JACS Au*. <https://doi.org/10.1021/JACSAU.2C00588>
124. Zingg, J.-M., Yang, Y.-P., Seely, S., Joshi, P., Roshid, M. H. O., Iribarren Latasa, F., O'Connor, G., Alfaro, J., Riquelme, E., Bernales, S., Dikici, E., Deo, S., & Daunert, S. (2023). Rapid isothermal point-of-care test for screening of SARS-CoV-2 (COVID-19). *Aspects of Molecular Medicine*, 1, 100002. <https://doi.org/10.1016/J.AMOLM.2023.100002>
125. Pollak, N. M., Olsson, M., Ahmed, M., Tan, J., Lim, G., Setoh, Y. X., Wong, J. C. C., Lai, Y. L., Hobson-Peters, J., Macdonald, J., & McMillan, D. (2023). Rapid Diagnostic Tests for the Detection of the Four Dengue Virus Serotypes in Clinically Relevant Matrices. *Microbiology Spectrum*, e0279622. <https://doi.org/10.1128/spectrum.02796-22>
126. Pollak, N. M., Marsh, G. A., Olsson, M., McMillan, D., & Macdonald, J. (2023). Rapid, sensitive, and specific, low-resource molecular detection of Hendra virus. *One Health*, 100504. <https://doi.org/10.1016/J.ONEHLT.2023.100504>
127. Lee, H. J., Kim, N. H., Lee, E. H., Yoon, Y. S., Jeong, Y. J., Lee, B. C., Koo, B., Jang, Y. O., Kim, S.-H., Kang, Y. A., Lee, S. W., & Shin, Y. (2023). Multicenter Testing of a Simple Molecular Diagnostic System for the Diagnosis of *Mycobacterium Tuberculosis*. *Biosensors* 2023, Vol. 13, Page 259, 13(2), 259. <https://doi.org/10.3390/BIOS13020259>
128. Greeshma, M., Bhat, A. I., & Jeevalatha, A. (2023). Rapid onsite detection of piper yellow mottle virus infecting black pepper by recombinase polymerase amplification-lateral flow assay (RPA-LFA). *Journal of Virological Methods*, 315, 114695. <https://doi.org/10.1016/J.JVIROMET.2023.114695>
129. Ertl, N. G., Irwin, A. D., Macdonald, J., Bauer, M. J., Wang, C. Y. T., Harris, P. N. A., Heney, C., Zowawi, H. M., & Whiley, D. M. (2023). Rapid molecular detection of CMY-2, and CTX-M group 1 and 9 variants via recombinase polymerase amplification. *JAC-Antimicrobial Resistance*, 5(2). <https://doi.org/10.1093/JACAMR/DLAD023>

130. Chen, Y., Hu, Y., & Lu, X. (2023). Polyethersulfone-Based Microfluidic Device Integrated with DNA Extraction on Paper and Recombinase Polymerase Amplification for the Detection of Salmonella enterica. ACS Sensors. <https://doi.org/10.1021/ACSSENSORS.3C00387>
131. Ma, X., Bai, X., Li, H., Ding, J., Zhang, H., Qiu, Y., Wang, J., Liu, X., Liu, M., Tang, B., & Xu, N. (2023). A rapid and visual detection assay for Clonorchis sinensis based on recombinase polymerase amplification and lateral flow dipstick. Parasites & Vectors, 16(1), 165. <https://doi.org/10.1186/s13071-023-05774-5>
132. Hu, M. S., Yan, M. C., Yu, Prof. H., Zhang, Dr. Y., & Zhang, Mr. C. (2023). Establishment of the recombinase polymerase amplification-lateral flow dipstick (RPA-LFD) detection technique for Fusarium oxysporum. <https://doi.org/10.1094/PDIS-12-22-2841-RE>
133. Yilmaz, S., & Batuman, O. (2023). Development of a reverse transcription recombinase polymerase amplification combined with lateral flow assay for equipment-free on-site field detection of tomato chlorotic spot virus. Virology Journal 2023 20:1, 20(1), 1–11. <https://doi.org/10.1186/S12985-023-02097-W>
134. Chen, Y., Hu, Y., & Lu, X. (2023). An Integrated Paper Microfluidic Device Based on Isothermal Amplification for Simple Sample-to-Answer Detection of Campylobacter jejuni. Applied and Environmental Microbiology. <https://doi.org/10.1128/AEM.00695-23>
135. Jia-cheng, X., San-lian, W., Yue, L., Yuan-di, X., Jing, Y., Ting, Z., Jia-jia, C., Zheng-guang, Z., Dan-yu, S., & Hai-feng, Z. (2023). Rapid detection of the rice false smut fungus Ustilagoideia virens by lateral flow strip-based recombinase polymerase amplification assay<sup>1</sup>. Journal of Integrative Agriculture. <https://doi.org/10.1016/J.JIA.2023.09.027>
136. Tanuri, A., Malaga, J. L., Pajuelo, M. J., Okamoto, M., Kagning Tsinda, E., Otani, K., Tsukayama, P., Mascaro, L., Cuicapuza, D., Katsumi, M., Kawamura, K., Nishimura, H., Sakagami, A., Ueki, Y., Omiya, S., Okamoto, S., Nakayama, A., Fujimaki, S., Yu, C., ... Saito, M. (2023). Rapid Detection of SARS-CoV-2 RNA Using Reverse Transcription Recombinase Polymerase Amplification (RT-RPA) with Lateral Flow for N-Protein Gene and Variant-Specific Deletion-Insertion Mutation in S-Protein Gene. Viruses 2023, Vol. 15, Page 1254, 15(6), 1254. <https://doi.org/10.3390/V15061254>
137. Kundrod, K. A., Barra, M., Wilkinson, A., Smith, C. A., Natoli, M. E., Chang, M. M., Coole, J. B., Santhanaraj, A., Lorenzoni, C., Mavume, C., Atif, H., Montealegre, J. R., Scheurer, M. E., Castle, P. E., Schmeler, K. M., & Richards-Kortum, R. R. (2023). An integrated isothermal nucleic acid amplification test to detect HPV16 and HPV18 DNA in resource-limited settings. Science Translational Medicine, 15(701). <https://doi.org/10.1126/SCITRANSLMED.ABN4768>
138. Liu, J., Wang, X., Sheng, F., Giri, B. R., Li, S., Xia, T., Li, X., & Cheng, G. (2023). Metagenomic sequencing for identifying pathogen-specific circulating DNAs and development of diagnostic methods for schistosomiasis. IScience, 26(9), 107495. <https://doi.org/10.1016/J.ISCI.2023.107495>

#### 4. CRISPR/Cas-based Nucleic Acid Detection

1. Abudayyeh, O. O., Gootenberg, J. S., Kellner, M. J., & Zhang, F. (2019). Nucleic Acid Detection of Plant Genes Using CRISPR-Cas13. *The CRISPR Journal*, 2(3), 165–171. <https://doi.org/10.1089/crispr.2019.0011> **Cas13**
2. Ali, Z., Aman, R., Mahas, A., Rao, G. S., Tehseen, M., Marsic, T., ... Mahfouz, M. M. (2020). iSCAN: An RT-LAMP-coupled CRISPR-Cas12 module for rapid, sensitive detection of SARS-CoV-2. *Virus Research*, 288. <https://doi.org/10.1016/j.virusres.2020.19812> **Cas12 RNA**
3. Azhar, M., Phutela, R., Kumar, M., Ansari, A. H., Rauthan, R., Gulati, S., Sharma, N., Sinha, D., Sharma, S., Singh, S., Acharya, S., Sarkar, S., Paul, D., Kathpalia, P., Aich, M., Sehgal, P., Ranjan, G., Bhojar, R. C., Indian CoV2 Genomics & Genetic Epidemiology (IndiCovGEN) Consortium, Singhal, K., ... Maiti, S. (2021). Rapid and accurate nucleobase detection using FnCas9 and its application in COVID-19 diagnosis. *Biosensors & bioelectronics*, 183, 113207. <https://doi.org/10.1016/j.bios.2021.113207> **RNA fnCas9**
4. Azhar, M., Phutela, R., Kumar, M., Hussain Ansari, A., Rauthan, R., Gulati, S., ... Maiti, S. (2020). Rapid, accurate, nucleobase detection using FnCas9 Single sentence summary A method to identify nucleotide sequence or nucleobase identity using FnCas9 and its implementation in the rapid and accurate diagnosis of SARS-CoV-2. *MedRxiv*, 2020.09.13.20193581. <https://doi.org/10.1101/2020.09.13.20193581> **fnCas9 RNA**
5. Bai, J., Lin, H., Li, H., Zhou, Y., Liu, J., Zhong, G., ... Huang, L. (2019). Cas12a-Based On-Site and Rapid Nucleic Acid Detection of African Swine Fever. *Frontiers in Microbiology*, 10. <https://doi.org/10.3389/fmicb.2019.02830> **Cas12**
6. Barnes, K. G., Lachenauer, A. E., Nitido, A., Siddiqui, S., Gross, R., Beitzel, B., ... Sabeti, P. C. (2020). Deployable CRISPR-Cas13a diagnostic tools to detect and report Ebola and Lassa virus cases in real-time. *Nature Communications*, 11. <https://doi.org/10.1038/s41467-020-17994-9> **Cas13 RNA**
7. Brandsma, E., Verhagen, H., van de Laar, T., Claas, E., Cornelissen, M., & van den Akker, E. (2021). Rapid, Sensitive, and Specific Severe Acute Respiratory Syndrome Coronavirus 2 Detection: A Multicenter Comparison Between Standard Quantitative Reverse-Transcriptase Polymerase Chain Reaction and CRISPR-Based DETECTR. *The Journal of infectious diseases*, 223(2), 206–213. <https://doi.org/10.1093/infdis/jiaa641> **RNA Cas12**
8. Broughton, J. P., Deng, X., Yu, G., Fasching, C. L., Servellita, V., Singh, J., ... Chiu, C. Y. (2020). CRISPR–Cas12-based detection of SARS-CoV-2. *Nature Biotechnology*, 38(7), 870–874. <https://doi.org/10.1038/s41587-020-0513-4> **Cas12 RNA**
9. Chen, G., Lyu, Y., Wang, D., Zhu, L., Cao, S., Pan, C., Feng, E., Zhang, W., Liu, X., Cui, Y., & Wang, H. (2021). Obtaining Specific Sequence Tags for *Yersinia pestis* and Visually Detecting Them Using the CRISPR-Cas12a System. *Pathogens (Basel, Switzerland)*, 10(5), 562. <https://doi.org/10.3390/pathogens10050562> **Cas12**
10. Chen, X., Deng, Y., Cao, G., Liu, X., Gu, T., Feng, R., Huo, D., Xu, F., & Hou, C. (2021). An ultrasensitive and point-of-care sensor for the telomerase activity detection. *Analytica chimica acta*, 1146, 61–69. <https://doi.org/10.1016/j.aca.2020.11.037> **Cas12**



11. Curti, L., Pereyra-Bonnet, F., & Gimenez, C. A. (2020, March 2). An ultrasensitive, rapid, and portable coronavirus SARS-CoV-2 sequence detection method based on CRISPR-Cas12. *BioRxiv*. <https://doi.org/10.1101/2020.02.29.971127> **Cas12 RNA**
12. Ding, R., Long, J., Yuan, M., Zheng, X., Shen, Y., Jin, Y., Yang, H., Li, H., Chen, S., & Duan, G. (2021). CRISPR/Cas12-Based Ultra-Sensitive and Specific Point-of-Care Detection of HBV. *International journal of molecular sciences*, 22(9), 4842. <https://doi.org/10.3390/ijms22094842> **RNA Cas12**
13. Gong, J., Kan, L., Zhang, X., He, Y., Pan, J., Zhao, L., Li, Q., Liu, M., Tian, J., Lin, S., Lu, Z., Xue, L., Wang, C., & Tang, G. (2021). An enhanced method for nucleic acid detection with CRISPR-Cas12a using phosphorothioate modified primers and optimized gold-nanoparticle strip. *Bioactive materials*, 6(12), 4580–4590. <https://doi.org/10.1016/j.bioactmat.2021.05.005> **Cas12**
14. Gootenberg, J. S., Abudayyeh, O. O., Kellner, M. J., Joung, J., Collins, J. J., & Zhang, F. (2018). Multiplexed and portable nucleic acid detection platform with Cas13, Cas12a and Csm6. *Science*, 360(6387), 439–444. <https://doi.org/10.1126/science.aag0179> **Cas13**
15. Gootenberg, J. S., Abudayyeh, O. O., Lee, J. W., Essletzbichler, P., Dy, A. J., Joung, J., ... Zhang, F. (2017). Nucleic acid detection with CRISPR-Cas13a/C2c2. In *Science* (Vol. 356). <https://doi.org/10.1126/science.aam9321> **Cas13**
16. Hao, L., Zhao, R., Ngambenjawang, C., Fleming, H., & Bhatia, S. (2020). CRISPR-Cas-amplified urine biomarkers for multiplexed and portable cancer diagnostics. *BioRxiv*. <https://doi.org/10.1101/2020.06.17.157180> **Cas12**
17. Joaquín Abugattás Núñez del Prado, Angélica Quintana Reyes, Blume La Torre, Renzo Gutiérrez Loli, Alejandro Pinzón Olejua, Elena Rocío Chamorro Chirinos, Félix Antonio Loza Mauricio, Jorge L. Maguiña, Julio Leon, Piere Rodríguez Aliaga, Edward Málaga Trillo. (2021). Clinical validation of RCSMS: a rapid and sensitive CRISPR-Cas12a test for the molecular detection of SARS-CoV-2 from saliva. medRxiv (Preprint). <https://doi.org/10.1101/2021.04.26.21256081> **RNA Cas12**
18. Joung, J., Ladha, A., Saito, M., Kim, N.-G., Woolley, A. E., Segel, M., ... Zhang, F. (2020). Detection of SARS-CoV-2 with SHERLOCK One-Pot Testing. *New England Journal of Medicine*, 383(15), 1492–1494. <https://doi.org/10.1056/nejmc2026172> **Cas13 RNA**
19. Kaminski, M. M., Alcantar, M. A., Lape, I. T., Greensmith, R., Huske, A. C., Valeri, J. A., ... Collins, J. J. (2020). A CRISPR-based assay for the detection of opportunistic infections post-transplantation and for the monitoring of transplant rejection. *Nature Biomedical Engineering*, 4(6), 601–609. <https://doi.org/10.1038/s41551-020-0546-5> **Cas13**
20. Kanitchinda, S., Srisala, J., Suebsing, R., Prachumwat, A., & Chaijarasphong, T. (2020). CRISPR-Cas fluorescent cleavage assay coupled with recombinase polymerase amplification for sensitive and specific detection of Enterocytozoon hepatopenaei. *Biotechnology Reports*, 27. <https://doi.org/10.1016/j.btre.2020.e00485> **Cas12**
21. Kellner, M. J., Koob, J. G., Gootenberg, J. S., Abudayyeh, O. O., & Zhang, F. (2019). SHERLOCK: nucleic acid detection with CRISPR nucleases. *Nature Protocols*, 14(10), 2986–3012. <https://doi.org/10.1038/s41596-019-0210-2> **Cas13**
22. Kumar, M., Gulati, S., Ansari, A. H., Phutela, R., Acharya, S., Azhar, M., Murthy, J., Kathpalia, P., Kanakan, A., Maurya, R., Vasudevan, J. S., S. A., Pandey, R., Maiti, S., & Chakraborty, D. (2021). FnCas9-based CRISPR diagnostic for rapid and accurate detection of major SARS-CoV-2 variants on a paper strip. *eLife*, 10, e67130. <https://doi.org/10.7554/eLife.67130> **RNA FnCas9**

23. Lee, R. A., De Puig, H., Nguyen, P. Q., Angenent-Mari, N. M., Donghia, N. M., McGee, J. P., ... Collins, J. J. (2020). Ultrasensitive CRISPR-based diagnostic for field-applicable detection of Plasmodium species in symptomatic and asymptomatic malaria. *Proceedings of the National Academy of Sciences of the United States of America*, 117(41), 25722–25731. <https://doi.org/10.1073/pnas.2010196117> **Cas13**
24. Li, H., Dong, X., Wang, Y., Yang, L., Cai, K., Zhang, X., Kou, Z., He, L., Sun, S., Li, T., Nie, Y., Li, X., & Sun, Y. (2021). Sensitive and Easy-Read CRISPR Strip for COVID-19 Rapid Point-of-Care Testing. *The CRISPR journal*, 4(3), 392–399. <https://doi.org/10.1089/crispr.2020.0138>
25. Li, T., Hu, R., Xia, J., Xu, Z., Chen, D., Xi, J., Liu, B. F., Zhu, J., Li, Y., Yang, Y., & Liu, M. (2021). G-triplex: A new type of CRISPR-Cas12a reporter enabling highly sensitive nucleic acid detection. *Biosensors & bioelectronics*, 187, 113292. <https://doi.org/10.1016/j.bios.2021.113292> **Cas12**
26. Li, Z., Zhao, W., Ma, S., Li, Z., Yao, Y., & Fei, T. (2021). A chemical-enhanced system for CRISPR-Based nucleic acid detection. *Biosensors & bioelectronics*, 192, 113493. Advance online publication. <https://doi.org/10.1016/j.bios.2021.113493> **Cas12**
27. Lu, S., Li, F., Chen, Q., Wu, J., Duan, J., Lei, X., ... Yin, H. (2020). Rapid detection of African swine fever virus using Cas12a-based portable paper diagnostics. *Cell Discovery*, 6(1). <https://doi.org/10.1038/s41421-020-0151-5> **Cas12**
28. Marsic, T., Ali, Z., Tehseen, M., Mahas, A., Hamdan, S., & Mahfouz, M. (2021). Vigilant: An Engineered VirD2-Cas9 Complex for Lateral Flow Assay-Based Detection of SARS-CoV2. *Nano letters*, 21(8), 3596–3603. <https://doi.org/10.1021/acs.nanolett.1c00612> **RNA VirDCas9**
29. Metsky, H. C., Freije, C. A., Kosoko-Thoroddsen, T. S. F., Sabeti, P. C., & Myhrvold, C. (2020). CRISPR-based surveillance for COVID-19 using genomically-comprehensive machine learning design. *BioRxiv*, 2020.02.26.967026. <https://doi.org/10.1101/2020.02.26.967026> **Cas12 RNA**
30. Myhrvold, C., Freije, C. A., Gootenberg, J. S., Abudayyeh, O. O., Metsky, H. C., Durbin, A. F., ... Sabeti, P. C. (2018). Field-deployable viral diagnostics using CRISPR-Cas13. In *Science* (Vol. 360). <https://doi.org/10.1126/science.aas8836> **Cas13**
31. Nguyen, L. T., Gurijala, J., Rananaware, S. R., Pizzano, B., Stone, B. T., & Jain, P. K. (2021). CRISPR-ENHANCE: An enhanced nucleic acid detection platform using Cas12a. *Methods* (San Diego, Calif.), S1046-2023(21)00025-6. Advance online publication. <https://doi.org/10.1016/j.ymeth.2021.02.001> **Cas12**
32. Nguyen, L. T., Smith, B. M., & Jain, P. K. (2020). Author Correction: Enhancement of trans-cleavage activity of Cas12a with engineered crRNA enables amplified nucleic acid detection (*Nature Communications*, (2020), 11, 1, (4906), 10.1038/s41467-020-18615-1). *Nature Communications*, 11(1). <https://doi.org/10.1038/s41467-020-20117-z> **Cas12**
33. Ooi, K. H., Tay, J. W. D., Teo, S. Y., Liu, M. M., Kaewsapsak, P., Jin, S., ... Tan, M. H. (2020). A CRISPR-based SARS-CoV-2 diagnostic assay that is robust against viral evolution and RNA editing. *BioRxiv*. <https://doi.org/10.1101/2020.07.03.185850> **Cas12**
34. Osborn, M. J., Bhardwaj, A., Bingea, S. P., Knipping, F., Feser, C. J., Lees, C. J., Collins, D. P., Steer, C. J., Blazar, B. R., & Tolar, J. (2021). CRISPR/Cas9-Based Lateral Flow and Fluorescence Diagnostics. *Bioengineering* (Basel, Switzerland), 8(2), 23. <https://doi.org/10.3390/bioengineering8020023> **Cas9**

35. Park, B. J., Park, M. S., Lee, J. M., & Song, Y. J. (2021). Specific Detection of Influenza A and B Viruses by CRISPR-Cas12a-Based Assay. *Biosensors*, 11(3), 88. <https://doi.org/10.3390/bios11030088> **RNA Cas12**
36. Patchsung, M., Jantarug, K., Pattama, A., Aphicho, K., Suraritdechachai, S., Meesawat, P., ... Uttamapinant, C. (2020). Clinical validation of a Cas13-based assay for the detection of SARS-CoV-2 RNA. *Nature Biomedical Engineering*, 4(12), 1140–1149. <https://doi.org/10.1038/s41551-020-00603-x> **Cas13 multiplex**
37. Qian J., Huang D., Ni D., Zhao J., Shi Z., Fang M. & Xu Z., A portable CRISPR Cas12a based lateral flow platform for sensitive detection of Staphylococcus aureus with double insurance, *Food Control* (2021), <https://doi.org/10.1016/j.foodcont.2021.108485>. **Cas12**
38. Rauch, J. N., Valois, E., Solley, S. C., Braig, F., Lach, R. S., Audouard, M., ... Wilson, M. Z. (2020). A Scalable, easy-to-deploy, protocol for Cas13-based detection of SARS-CoV-2 genetic material. *BioRxiv*. <https://doi.org/10.1101/2020.04.20.052159> **Cas13 RNA**
39. Schermer, B., Fabretti, F., Damagnez, M., Cristanziano, V. Di, Heger, E., Arjune, S., ... Müller, R. U. (2020). Rapid SARS-CoV-2 testing in primary material based on a novel multiplex LAMP assay. *MedRxiv*. <https://doi.org/10.1101/2020.06.18.20130377> **RNA**
40. Shihong Gao, D., Zhu, X., & Lu, B. (2021). Development and application of sensitive, specific, and rapid CRISPR-Cas13-based diagnosis. *Journal of medical virology*, 93(7), 4198–4204. <https://doi.org/10.1002/jmv.26889> **Cas13**
41. Sullivan, T. J., Dhar, A. K., Cruz-Flores, R., & Bodnar, A. G. (2019). Rapid, CRISPR-Based, Field-Deployable Detection Of White Spot Syndrome Virus In Shrimp. In *Scientific Reports* (Vol. 9). <https://doi.org/10.1038/s41598-019-56170-y> **Cas13**
42. Tsou, J. H., Leng, Q., & Jiang, F. (2019). A CRISPR Test for Detection of Circulating Nuclei Acids. *Translational Oncology*, 12(12), 1566–1573. <https://doi.org/10.1016/j.tranon.2019.08.011> **Cas12**
43. Tsou, J. H., Liu, H., Stass, S. A., & Jiang, F. (2021). Rapid and Sensitive Detection of SARS-CoV-2 Using Clustered Regularly Interspaced Short Palindromic Repeats. *Biomedicines*, 9(3), 239. <https://doi.org/10.3390/biomedicines9030239> **RNA Cas12**
44. Wang, X., Ji, P., Fan, H., Dang, L., Wan, W., Liu, S., ... Liao, M. (2020). CRISPR/Cas12a technology combined with immunochromatographic strips for portable detection of African swine fever virus. *Communications Biology*, 3(1). <https://doi.org/10.1038/s42003-020-0796-5> **Cas12**
45. Wang, X., Xiong, E., Tian, T., Cheng, M., Lin, W., Wang, H., ... Zhou, X. (2020). Clustered Regularly Interspaced Short Palindromic Repeats/Cas9-Mediated Lateral Flow Nucleic Acid Assay. *ACS Nano*, 14(2), 2497–2508. <https://doi.org/10.1021/acsnano.0c00022> **Cas9**
46. Wang, X., Zhou, S., Chu, C., Yang, M., Huo, D., & Hou, C. (2021). Dual Methylation-Sensitive Restriction Endonucleases Coupling with an RPA-Assisted CRISPR/Cas13a System (DESCS) for Highly Sensitive Analysis of DNA Methylation and Its Application for Point-of-Care Detection. *ACS sensors*, 6(6), 2419–2428. <https://doi.org/10.1021/acssensors.1c00674> **Cas13**
47. Yoshimi, K., Takeshita, K., Yamayoshi, S., Shibumura, S., Yamauchi, Y., Yamamoto, M., ... Mashimo, T. (2020). Rapid and accurate detection of novel coronavirus SARS-CoV-2 using CRISPR-Cas3. *MedRxiv*. <https://doi.org/10.1101/2020.06.02.20119875> **Cas3**

48. Zhang YM., Yang Y., Xie K. (2021) CRISPR-Cas12a-Based DNA Detection for Fast Pathogen Diagnosis and GMO Test in Plants. In: Islam M.T., Molla K.A. (eds) CRISPR-Cas Methods. Springer Protocols Handbooks. Humana, New York, NY. [https://doi.org/10.1007/978-1-0716-1657-4\\_15](https://doi.org/10.1007/978-1-0716-1657-4_15) **Cas12**
49. Zhang, C., Li, Z., Chen, M., Hu, Z., Wu, L., Zhou, M., & Liang, D. (2021). Cas12a and Lateral Flow Strip-Based Test for Rapid and Ultrasensitive Detection of Spinal Muscular Atrophy. *Biosensors*, 11(5), 154. <https://doi.org/10.3390/bios11050154> **Cas12**
50. Ali, Z., Sánchez, E., Tehseen, M., Mahas, A., Marsic, T., Aman, R., Sivakrishna Rao, G., Alhamlan, F. S., Alsanea, M. S., Al-Qahtani, A. A., Hamdan, S., & Mahfouz, M. (2021). Bio-SCAN: A CRISPR/dCas9-Based Lateral Flow Assay for Rapid, Specific, and Sensitive Detection of SARS-CoV-2. *ACS synthetic biology*, 10.1021/acssynbio.1c00499. Advance online publication. <https://doi.org/10.1021/acssynbio.1c00499> **Cas9**
51. Li, Z., Ding, X., Yin, K., Avery, L., Ballesteros, E., & Liu, C. (2021). Instrument-free, CRISPR-based diagnostics of SARS-CoV-2 using self-contained microfluidic system. *Biosensors & bioelectronics*, 199, 113865. Advance online publication. <https://doi.org/10.1016/j.bios.2021.113865> **Cas12a**
52. Yao, K., Peng, D., Jiang, C., Zhao, W., Li, G., Huang, W., Kong, L., Gao, H., Zheng, J., & Peng, H. (2021). Rapid and Visual Detection of *Heterodera schachtii* Using Recombinase Polymerase Amplification Combined with Cas12a-Mediated Technology. *International journal of molecular sciences*, 22(22), 12577. <https://doi.org/10.3390/ijms222212577> **Cas12a**
53. Shin, K., Kwon, S. H., Lee, S. C., & Moon, Y. E. (2021). Sensitive and Rapid Detection of Citrus Scab Using an RPA-CRISPR/Cas12a System Combined with a Lateral Flow Assay. *Plants (Basel, Switzerland)*, 10(10), 2132. <https://doi.org/10.3390/plants10102132> **Cas12a**
54. Brogan, D. J., Chaverra-Rodriguez, D., Lin, C. P., Smidler, A. L., Yang, T., Alcantara, L. M., Antoshechkin, I., Liu, J., Raban, R. R., Belda-Ferre, P., Knight, R., Komives, E. A., & Akbari, O. S. (2021). Development of a Rapid and Sensitive CasRx-Based Diagnostic Assay for SARS-CoV-2. *ACS sensors*, 6(11), 3957–3966. <https://doi.org/10.1021/acssensors.1c01088> **Cas13d**
55. Sukonta, T., Senapin, S., Meemetta, W., & Chaijarasphong, T. (2022). CRISPR-based platform for rapid, sensitive and field-deployable detection of scale drop disease virus in Asian sea bass (*Lates calcarifer*). *Journal of fish diseases*, 45(1), 107–120. <https://doi.org/10.1111/jfd.13541> **Cas12a**
56. Talwar, C. S., Park, K. H., Ahn, W. C., Kim, Y. S., Kwon, O. S., Yong, D., Kang, T., & Woo, E. (2021). Detection of Infectious Viruses Using CRISPR-Cas12-Based Assay. *Biosensors*, 11(9), 301. <https://doi.org/10.3390/bios11090301> **Cas12**
57. Chen, M., Zhang, C., Hu, Z., Li, Z., Li, M., Wu, L., Zhou, M., & Liang, D. (2021). CRISPR/Cas12a-Based Ultrasensitive and Rapid Detection of JAK2 V617F Somatic Mutation in Myeloproliferative Neoplasms. *Biosensors*, 11(8), 247. <https://doi.org/10.3390/bios11080247> **Cas12a**
58. Li, L., Duan, C., Weng, J., Qi, X., Liu, C., Li, X., Zhu, J., & Xie, C. (2021). A field-deployable method for single and multiplex detection of DNA or RNA from pathogens using Cas12 and Cas13. *Science China. Life sciences*, 1–10. Advance online publication. <https://doi.org/10.1007/s11427-021-2028-x>
59. Azmi, I., Faizan, M. I., Kumar, R., Raj Yadav, S., Chaudhary, N., Kumar Singh, D., Butola, R., Ganotra, A., Datt Joshi, G., Deep Jhingan, G., Iqbal, J., Joshi, M. C., & Ahmad, T. (2021). A Saliva-Based RNA Extraction-Free Workflow Integrated With Cas13a for SARS-CoV-2 Detection. *Frontiers in cellular and infection microbiology*, 11, 632646. <https://doi.org/10.3389/fcimb.2021.632646> **Cas13a**

60. Rauch, J. N., Valois, E., Solley, S. C., Braig, F., Lach, R. S., Audouard, M., Ponce-Rojas, J. C., Costello, M. S., Baxter, N. J., Kosik, K. S., Arias, C., Acosta-Alvear, D., & Wilson, M. Z. (2021). A Scalable, Easy-to-Deploy Protocol for Cas13-Based Detection of SARS-CoV-2 Genetic Material. *Journal of clinical microbiology*, 59(4), e02402-20. <https://doi.org/10.1128/JCM.02402-20> **Cas13**
61. Qian J., Huang D., Ni D., Zhao J., Shi Z., Fang M. & Xu Z., A portable CRISPR Cas12a based lateral flow platform for sensitive detection of *Staphylococcus aureus* with double insurance, *Food Control* (2021), doi: <https://doi.org/10.1016/j.foodcont.2021.108485>. **Cas12a**
62. Arizti-Sanz, J., Bradley, A., Zhang, Y. B., Boehm, C. K., Freije, C. A., Grunberg, M. E., Kosoko-Thoroddsen, T.-S. F., Welch, N. L., Pillai, P. P., Mantena, S., Kim, G., Uwanibe, J. N., John, O. G., Eromon, P. E., Kocher, G., Gross, R., Lee, J. S., Hensley, L. E., MacInnis, B. L., ... Myhrvold, C. (2022). Simplified Cas13-based assays for the fast identification of SARS-CoV-2 and its variants. *Nature Biomedical Engineering* 2022, 1–12. <https://doi.org/10.1038/s41551-022-00889-z> **Cas13**
63. Casati, B., Verdi, J. P., Hempelmann, A., Kittel, M., Klaebisch, A. G., Meister, B., Welker, S., Asthana, S., Giorgio, S. di, Boskovic, P., Man, K. H., Schopp, M., Ginno, P. A., Radlwimmer, B., Stebbins, C. E., Miethke, T., Papavasiliou, F. N., & Pecori, R. (2022). Rapid, adaptable and sensitive Cas13-based COVID-19 diagnostics using ADESSO. *Nature Communications* 2022 13:1, 13(1), 1–11. <https://doi.org/10.1038/s41467-022-30862-y> **Cas13**
64. Ganbaatar, U., & Liu, C. (2022). NEXT CRISPR: An enhanced CRISPR-based nucleic acid biosensing platform using extended crRNA. *Sensors and Actuators B: Chemical*, 369, 132296. <https://doi.org/10.1016/J.SNB.2022.132296> **Cas12a**
65. Hu, C., Ni, D., Nam, K. H., Majumdar, S., McLean, J., Stahlberg, H., Terns, M. P., & Ke, A. (2022). Allosteric control of type I-A CRISPR-Cas3 complexes and establishment as effective nucleic acid detection and human genome editing tools. *Molecular Cell*. <https://doi.org/10.1016/J.MOLCEL.2022.06.007> **Cas3**
66. Hussain Ansari, A., Kumar, M., Sarkar, S., Maiti, S., & Chakraborty, D. (2022). CriSNPr: a single interface for the curated and de-novo design of gRNAs for CRISPR diagnostics using diverse Cas systems. <https://doi.org/10.7554/eLife.77976> **FnCas9 LwCas13a LbCas12a AaCas12b Cas14a**
67. Lu, S., Tong, X., Han, Y., Zhang, K., Zhang, Y., Chen, Q., Duan, J., Lei, X., Huang, M., Qiu, Y., Zhang, D. Y., Zhou, X., Zhang, Y., & Yin, H. (2022). Fast and sensitive detection of SARS-CoV-2 RNA using suboptimal protospacer adjacent motifs for Cas12a. *Nature Biomedical Engineering* 2022 6:3, 6(3), 286–297. <https://doi.org/10.1038/s41551-022-00861-x> **Cas12**
68. Marqués, M.-C., Sánchez-Vicente, J., Ruiz, R., Montagud-Martínez, R., Márquez-Costa, R., Gómez, G., Carbonell, A., Daròs, J.-A., & Rodrigo, G. (2022). Diagnostics of Infections Produced by the Plant Viruses TMV, TEV, and PVX with CRISPR-Cas12 and CRISPR-Cas13. *ACS Synthetic Biology*. <https://doi.org/10.1021/ACSSYNBIO.2C00090> **Cas12**
69. Nguyen, L. T., Rananaware, S. R., Pizzano, B. L. M., Stone, B. T., & Jain, P. K. (2022). Clinical validation of engineered CRISPR/Cas12a for rapid SARS-CoV-2 detection. *Communications Medicine*, 2(1), 7. <https://doi.org/10.1038/s43856-021-00066-4> **Cas12a**
70. Tao, D., Xiao, X., Lan, X., Xu, B., Wang, Y., Khazalwa, E. M., Pan, W., Ruan, J., Jiang, Y., Liu, X., Li, C., Ye, R., Li, X., Xu, J., Zhao, S., & Xie, S. (2022). An Inexpensive CRISPR-Based Point-of-Care Test for the Identification of Meat Species and Meat Products. *Genes* 2022, Vol. 13, Page 912, 13(5), 912. <https://doi.org/10.3390/GENES13050912> **Cas12a**

71. Yi, Z., de Dieu Habimana, J., Mukama, O., Li, Z., Odiwuor, N., Jing, H., Nie, C., Hu, M., Lin, Z., Wei, H., & Zeng, L. (2021). Rational Programming of Cas12a for Early-Stage Detection of COVID-19 by Lateral Flow Assay and Portable Real-Time Fluorescence Readout Facilities. *Biosensors* 2022, Vol. 12, Page 11, 12(1), 11. <https://doi.org/10.3390/BIOS12010011> **Cas12a**
72. Yoshimi, K., Takeshita, K., Yamayoshi, S., Shibumura, S., Yamauchi, Y., Yamamoto, M., Yotsuyanagi, H., Kawaoka, Y., & Mashimo, T. (2022). CRISPR-Cas3-based diagnostics for SARS-CoV-2 and influenza virus. *IScience*, 25(2), 103830. <https://doi.org/10.1016/J.ISCI.2022.103830> **Cas13**
73. Bhatt, A., Fatima, Z., Ruwali, M., Misra, C. S., Rangu, S. S., Rath, D., Rattan, A., & Hameed, S. (2022). CLEVER assay: A visual and rapid RNA extraction-free detection of SARS-CoV-2 based on CRISPR-Cas integrated RT-LAMP technology. *Journal of Applied Microbiology*, 00, 1. <https://doi.org/10.1111/JAM.15571> **Cas12**
74. Kham-Kjing, N., Ngo-Giang-Huong, N., Tragoolpua, K., Khamduang, W., & Hongjaisee, S. (2022). Highly Specific and Rapid Detection of Hepatitis C Virus Using RT-LAMP-Coupled CRISPR-Cas12 Assay. *Diagnostics* 2022, Vol. 12, Page 1524, 12(7), 1524. <https://doi.org/10.3390/DIAGNOSTICS12071524> **Cas12**
75. Cao, G., Huo, D., Chen, X., Wang, X., Zhou, S., Zhao, S., Luo, X., & Hou, C. (2022). Automated, portable, and high-throughput fluorescence analyzer (APHF-analyzer) and lateral flow strip based on CRISPR/Cas13a for sensitive and visual detection of SARS-CoV-2. *Talanta*, 248, 123594. <https://doi.org/10.1016/J.TALANTA.2022.123594> **Cas13a**
76. Diagnostics, A., Hernandez-Garcia, A., Morales-Moreno, M. D., Valdés-Galindo, E. G., Jimenez-Nieto, E. P., & Quezada, A. (2022). Diagnostics of COVID-19 Based on CRISPR/Cas Coupled to Isothermal Amplification: A Comparative Analysis and Update. *Diagnostics* 2022, Vol. 12, Page 1434, 12(6), 1434. <https://doi.org/10.3390/DIAGNOSTICS12061434> **Cas12a**
77. Phutela, R., Gulati, S., Kumar, M., Maiti, S., & Chakraborty, D. (2022). FnCas9 Editor Linked Uniform Detection Assay for COVID-19. *Methods in Molecular Biology (Clifton, N.J.)*, 2511, 149–159. [https://doi.org/10.1007/978-1-0716-2395-4\\_11](https://doi.org/10.1007/978-1-0716-2395-4_11) **Cas9**
78. van Riet, J., Saha, C., Strepis, N., Brouwer, R. W. W., Martens-Uzunova, E. S., van de Geer, W. S., Swagemakers, S. M. A., Stubbs, A., Halimi, Y., Voogd, S., Tanmoy, A. M., Komor, M. A., Hoogstrate, Y., Janssen, B., Fijneman, R. J. A., Niknafs, Y. S., Chinnaiyan, A. M., van IJcken, W. F. J., van der Spek, P. J., ... Louwen, R. (2022). CRISPRs in the human genome are differentially expressed between malignant and normal adjacent to tumor tissue. *Communications Biology* 2022 5:1, 5(1), 1–13. <https://doi.org/10.1038/s42003-022-03249-4> **Cas12a/Cas13**
79. Berghuis, N. F., Mars-Groenendijk, R., Busker, R. W., Paauw, A., & van Leeuwen, H. C. (2022). Combining CRISPR-Cas12a with Terminal Deoxynucleotidyl Transferase dependent reporter elongation for pathogen detection using Lateral Flow Test Strips. Oxford University Press. <https://doi.org/10.1093/biomethods/bpac015> **Cas12a**
80. Bernabé-Orts, J. M., Hernando, Y., & Aranda, M. A. (2022). Toward a CRISPR-Based Point-of-Care Test for Tomato Brown Rugose Fruit Virus Detection. <https://doi.org/10.1094/PHYTOFR-08-21-0053-TA> **Cas12a**
81. Xie, S., Tao, D., Fu, Y., Xu, B., Tang, Y., Steinaa, L., Hemmink, J. D., Pan, W., Huang, X., Nie, X., Zhao, C., Ruan, J., Zhang, Y., Han, J., Fu, L., Ma, Y., Li, X., Liu, X., & Zhao, S. (2022). Rapid Visual CRISPR Assay: A Naked-Eye Colorimetric Detection Method for Nucleic Acids Based on CRISPR/Cas12a and a Convolutional Neural Network. *ACS Synthetic Biology*, 11(1), 383–396. <https://doi.org/10.1021/acssynbio.1c00474> **Cas12a**

82. Cao, H., Mao, K., Ran, F., Xu, P., Zhao, Y., Zhang, X., Zhou, H., Yang, Z., Zhang, H., & Jiang, G. (2022). Paper Device Combining CRISPR/Cas12a and Reverse-Transcription Loop-Mediated Isothermal Amplification for SARS-CoV-2 Detection in Wastewater. *Environmental Science & Technology*. <https://doi.org/10.1021/ACS.EST.2C04727> **Cas12a**
83. Pop, S., Id, W., Thananchai, H., Chewapreecha, C., Roslund, H. B., Chomkatekaew, C., Tananupak, W., Boonklang, P., Pakdeerat, S., Seng, R., Chantratita, N., Takarn, P., & Khamnoi, P. (2022). Highly specific and sensitive detection of *Burkholderia pseudomallei* genomic DNA by CRISPR-Cas12a. *PLOS Neglected Tropical Diseases*, 16(8), e0010659. <https://doi.org/10.1371/JOURNAL.PNTD.0010659> **Cas12a**
84. Sánchez, E., Ali, Z., Islam, T., Mahfouz, M., & Mahfouz, M. M. (2022). A CRISPR-based lateral flow assay for plant genotyping and pathogen diagnostics. *Plant Biotechnology Journal*. <https://doi.org/10.1111/PBI.13924>
85. Luo, M., Meng, F. Z., Tan, Q., Yin, W. X., & Luo, C. X. (2021). Recombinase Polymerase Amplification/Cas12a-Based Identification of *Xanthomonas arboricola* pv. *pruni* on Peach. *Frontiers in Plant Science*, 12, 2527. <https://doi.org/10.3389/fpls.2021.740177> **Cas12a**
86. Sukonta, T., Senapin, S., Taengphu, S., Hannanta-anan, P., Kitthamarat, M., Aiamsa-at, P., & Chaijarasphong, T. (2022). An RT-RPA-Cas12a platform for rapid and sensitive detection of tilapia lake virus. *Aquaculture*, 560, 738538. <https://doi.org/10.1016/J.AQUACULTURE.2022.738538>
87. Wheatley, M. S., Wang, Q., Wei, W., Bottner-Parker, K. D., Zhao, Y., & Yang, Y. (2022). Cas12a-Based Diagnostics for Potato Purple Top Disease Complex Associated with Infection by 'Candidatus *Phytoplasma trifolii*'-Related Strains. *Plant Disease*, 106(8), 2039–2045. <https://doi.org/10.1094/PDIS-09-21-2119-RE> **Cas12a**
88. Xu, B., Gong, P., Zhang, Y., Wang, Y., Tao, D., Fu, L., Khazalwa, E. M., Liu, H., Zhao, S., Zhang, X., & Xie, S. (2022). A one-tube rapid visual CRISPR assay for the field detection of Japanese encephalitis virus. *Virus Research*, 319, 198869. <https://doi.org/10.1016/J.VIRUSRES.2022.198869> **Cas12a**
89. Ju, B., P., Rae, J., Y., Heo, S. T., Kim, M., Lee, K. H., & Songid, Y.-J. (2022). A CRISPR-Cas12a-based diagnostic method for multiple genotypes of severe fever with thrombocytopenia syndrome virus. *PLOS Neglected Tropical Diseases*, 16(8), e0010666. <https://doi.org/10.1371/JOURNAL.PNTD.0010666> **Cas12a**
90. Zhang F., Abudayyeh O. O., Gootenberg J.S., Mathers L. (2020). A protocol for detection of COVID-19 using CRISPR diagnostics. *Broad Communications*. [Link to protocol](#). **Cas13**
91. Broughton J. P., Wayne D., Fasching C. L., Singh J., Charles Y., Chen J. S. (2020). A protocol for rapid detection of the 2019 novel coronavirus SARS-CoV-2 using CRISPR diagnostics : SARS-CoV-2 DETECTOR. *MammothBiosciences*. [Link to protocol](#). **Cas12**
92. Ortiz-Cartagena, C., Fernández-García, L., Blasco, L., Pacios, O., Bleriot, I., López, M., Cantón, R., & Tomás, M. (2022). Reverse Transcription-Loop-Mediated Isothermal Amplification-CRISPR-Cas13a Technology as a Promising Diagnostic Tool for SARS-CoV-2. *Microbiology Spectrum*. <https://doi.org/10.1128/SPECTRUM.02398-22> **Cas13a**
93. Zhou, S., Dong, J., Deng, L., Wang, G., Yang, M., Wang, Y., Huo, D., & Hou, C. (2022). Endonuclease-Assisted PAM-free Recombinase Polymerase Amplification Coupling with CRISPR/Cas12a (E-PfRPA/Cas) for Sensitive Detection of DNA Methylation. *ACS Sensors*. <https://doi.org/10.1021/ACSSENSORS.2C01330> **Cas12a**

94. Brogan, D. J., Chaverra-Rodriguez, D., Lin, C. P., Smidler, A. L., Yang, T., Alcantara, L. M., Antoshechkin, I., Liu, J., Raban, R. R., Belda-Ferre, P., Knight, R., Komives, E. A., & Akbari, O. S. (2021). Development of a Rapid and Sensitive CasRx-Based Diagnostic Assay for SARS-CoV-2. *ACS Sensors*, 6(11), 3957–3966. <https://pubs.acs.org/doi/10.1021/acssensors.1c01088>
95. Azhar, M., Phutela, R., Kumar, M., Ansari, A. H., Rauthan, R., Gulati, S., Sharma, N., Sinha, D., Sharma, S., Singh, S., Acharya, S., Sarkar, S., Paul, D., Kathpalia, P., Aich, M., Sehgal, P., Ranjan, G., Bhojar, R. C., Singhal, K., ... Maiti, S. (2021). Rapid and accurate nucleobase detection using FnCas9 and its application in COVID-19 diagnosis. *Biosensors and Bioelectronics*, 183, 113207. <https://doi.org/10.1016/J.BIOS.2021.113207> **Cas9**
96. Ngamsom, B., Iles, A., Kamita, M., Kimani, R., Wakaba, P., Rodriguez-Mateos, P., Mungai, M., Dyer, C. E., Walter, C., Gitaka, J., & Pamme, N. (2022). A sample-to-answer COVID-19 diagnostic device based on immiscible filtration and CRISPR-Cas12a-assisted detection. *Talanta Open*, 6, 100166. <https://doi.org/10.1016/J.TALO.2022.100166> **Cas12a**
97. Sima, N., Dujeancourt-Henry, A., Perlaza, B. L., Ungeheuer, M.-N., Rotureau, B., & Glover, L. (2022). SHERLOCK4HAT: A CRISPR-based tool kit for diagnosis of Human African Trypanosomiasis. *EBioMedicine*, 85, 104308. <https://doi.org/10.1016/J.EBIOM.2022.104308> **Cas13**
98. Yan, J., Xu, Z., Zhou, H., Li, T., Du, X., Hu, R., Zhu, J., Ou, G., Li, Y., & Yang, Y. (2022). Integration of CRISPR/Cas12a and Multiplexed RPA for Fast Detection of Gene Doping. *Analytical Chemistry*. <https://doi.org/10.1021/ACS.ANALCHEM.2C04079> **Cas12a**
99. Patchesung, M., Homchan, A., Aphicho, K., Suraritdechachai, S., Wanitchanon, T., Pattama, A., Sappakhaw, K., Meesawat, P., Wongsatit, T., Athipanyasilp, A., Jantarug, K., Athipanyasilp, N., Buahom, J., Visanpattanasin, S., Niljianskul, N., Chaiyen, P., Tinikul, R., Wichukchinda, N., Mahasirimongkol, S., Uttamapinant, C. (2022). A Multiplexed Cas13-Based Assay with Point-of-Care Attributes for Simultaneous COVID-19 Diagnosis and Variant Surveillance. <https://Home.Liebertpub.Com/Crispr, XX>. <https://doi.org/10.1089/CRISPR.2022.0048> **Cas13a/b**
100. Liu, H., Wang, J., Hu, X., Tang, X., & Zhang, C. (2022). A rapid and high-throughput *Helicobacter pylori* RPA-CRISPR/Cas12a-based nucleic acid detection system. *Clinica Chimica Acta*. <https://doi.org/10.1016/J.CCA.2022.12.013> **Cas12a**
101. Jiang, W., Aman, R., Ali, Z., & Mahfouz, M. (2023). Bio-SCAN V2: A CRISPR/dCas9-based lateral flow assay for rapid detection of theophylline. *Frontiers in Bioengineering and Biotechnology*, 11. <https://doi.org/10.3389/FBIOE.2023.1118684> **Cas9**
102. Tang, G., Zhang, Z., Tan, W., Long, F., Sun, J., Li, Y., Zou, S., Yang, Y., Cai, K., Li, S., Wang, Z., Liu, J., Mao, G., Ma, Y., Zhao, G.-P., Tian, Z.-G., & Zhao, W. (2023). RT-RPA-Cas12a-based assay facilitates the discrimination of SARS-CoV-2 variants of concern. *Sensors and Actuators B: Chemical*, 381, 133433. <https://doi.org/10.1016/J.SNB.2023.133433> **Cas12a**
103. Cao, X., Chang, Y., Tao, C., Chen, S., Lin, Q., Ling, C., Huang, S., Zhang, H., & Rogovskyy, A. S. (2023). Cas12a/Guide RNA-Based Platforms for Rapidly and Accurately Identifying *Staphylococcus aureus* and Methicillin-Resistant *S. aureus*. *Microbiology Spectrum*. <https://doi.org/10.1128/SPECTRUM.04870-22> **Cas12a**
104. Thakku, S. G., Lirette, J., Murugesan, K., Chen, J., Theron, G., Banaei, N., Blainey, P. C., Gomez, J., Wong, S. Y., & Hung, D. T. (2023). Genome-wide tiled detection of circulating *Mycobacterium tuberculosis* cell-free DNA using Cas13. *Nature Communications* 2023 14:1, 14(1), 1–13. <https://doi.org/10.1038/s41467-023-37183-8> **Cas13**
105. Yan, H., Wen, Y., Tian, Z., Hart, N., Han, S., Hughes, S. J., & Zeng, Y. (2023). A one-pot isothermal Cas12-based assay for the sensitive detection of microRNAs. *Nature Biomedical Engineering* 2023, 1–19. <https://doi.org/10.1038/s41551-023-01033-1> **Cas12**



106. Aiamsa-at, P., Nonthakaew, N., Phiwsaiya, K., Senapin, S., & Chaijarasphong, T. (2023). CRISPR-based, genotype-specific detection of yellow head virus genotype 1 with fluorescent, lateral flow and DNAzyme-assisted colorimetric readouts. *Aquaculture*, 739696. <https://doi.org/10.1016/J.AQUACULTURE.2023.739696> **Cas12a**
107. Sagoe, K. O., Kyama, M. C., Maina, N., Kamita, M., Njokah, M., Thiong'o, K., Kanoi, B. N., Wandera, E. A., Ndegwa, D., Kinyua, D. M., & Gitaka, J. (2023). Application of Hybridization Chain Reaction/CRISPR-Cas12a for the Detection of SARS-CoV-2 Infection. *Diagnostics* 2023, Vol. 13, Page 1644, 13(9), 1644. <https://doi.org/10.3390/DIAGNOSTICS13091644> **Cas12a**
108. Tu, Q., Cao, X., Ling, C., Xiang, L., Yang, P., & Huang, S. (2023). Point-of-care detection of *Neisseria gonorrhoeae* based on RPA-CRISPR/Cas12a. *AMB Express* 2023 13:1, 13(1), 1–9. <https://doi.org/10.1186/S13568-023-01554-7> **Cas12a**
109. Wax, N., La-Rostami, F., Albert, C., & Fischer, M. (2023). Variety Differentiation: Development of a CRISPR DETECTR Method for the Detection of Single Nucleotide Polymorphisms (SNPs) in Cacao (*Theobroma cacao*) and Almonds (*Prunus dulcis*). *Food Analytical Methods* 2023, 1, 1–11. <https://doi.org/10.1007/S12161-023-02500-W> **Cas12a**
110. Kwak, N., Park, B. J., & Song, Y.-J. (2023). A CRISPR-Cas12a-Based Diagnostic Method for Japanese Encephalitis Virus Genotypes I, III, and V. *Biosensors* 2023, Vol. 13, Page 769, 13(8), 769. <https://doi.org/10.3390/BIOS13080769> **Cas12a**
111. Chaudhary, S., Green, A., Stephanopoulos, N., & Mangone, M. (2022). Harnessing Protein-Nucleic Acid Interactions to Engineer Biomolecular Devices.
112. Wang, L., Chen, X., Pan, F., Yao, G., & Chen, J. (2023). Development of a rapid detection method for *Karenia mikimotoi* by using CRISPR-Cas12a. *Frontiers in Microbiology*, 14, 1205765. <https://pubmed.ncbi.nlm.nih.gov/37608945/> **Cas12a**
113. Amanzholova, M., Shaizadinova, A., Bulashev, A., & Abeldenov, S. (2023). Genetic identification of *Staphylococcus aureus* isolates from cultured milk samples of bovine mastitis using isothermal amplification with CRISPR/Cas12a-based molecular assay. *Veterinary Research Communications*, 1–10. <https://pubmed.ncbi.nlm.nih.gov/37673833/> **Cas12a**
114. Cally, L., Pasricha, S., Williamson, D. A., Kerry M Biotech, W. J., Whitehead, L. W., Williams, L., Cooney, J. P., Pellegrini, M., Savic, I., Prestedge, J., Tran, T., Lim, C. K., Towns, J. M., Bradshaw, C. S., Fairley, C., F Chow, E. P., Chen, M. Y., Jen Low, S., O, M. T., ... Williamson, D. A. (2023). Rapid detection of monkeypox virus using a CRISPR-Cas12a mediated assay: a laboratory validation and evaluation study. *The Lancet Microbe*, 0(0). [https://doi.org/10.1016/S2666-5247\(23\)00148-9](https://doi.org/10.1016/S2666-5247(23)00148-9) **Cas12a**
115. Wang, L., Sun, J., Zhao, J., Bai, J., Zhang, Y., Zhu, Y., Zhang, W., Wang, C., Langford, P. R., Liu, S., & Li, G. (2024). A CRISPR-Cas12a-based platform facilitates the detection and serotyping of *Streptococcus suis* serotype 2. *Talanta*, 267, 125202. <https://doi.org/10.1016/J.TALANTA.2023.125202> **Cas12a**
116. Yang, Y., Wang, F., Xue, B., & Zhou, X. (2023). Field-deployable assay based on CRISPR-Cas13a coupled with RT-RPA in one tube for the detection of SARS-CoV-2 in wastewater. *Journal of Hazardous Materials*, 459, 132077. <https://doi.org/10.1016/J.JHAZMAT.2023.132077> **Cas13a**
117. Zhou, B., Chen, Y., Li, L., Liu, J., Wang, Y., Huang, Z., Hu, Z., Tian, R., & Li, Z. (2023). Purification and functional validation of LtCas12a protein. *STAR Protocols*, 4(4), 102600. <https://doi.org/10.1016/J.XPRO.2023.102600> **Cas12a**
118. MacGregor, S. R., McManus, D. P., Sivakumaran, H., Egwang, T. G., Adriko, M., Cai, P., Gordon, C. A., Duke, M. G., French, J. D., Collinson, N., Olveda, R. M., Hartel, G., Graeff-Teixeira, C., Jones, M. K., & You, H. (2023). Development of CRISPR/Cas13a-based assays for the diagnosis of Schistosomiasis. *EBioMedicine*, 94, 104730. <https://doi.org/10.1016/J.EBIOM.2023.104730> **Cas13a**

119. Ortiz-Cartagena, C., Pablo-Marcos, D., Fernández-García, L., Blasco, L., Pacios, O., Bleriot, I., Siller, M., López, M., Fernández, J., Aracil, B., Fraile-Ribot, P. A., García-Fernández, S., Fernández-Cuenca, F., Hernández-García, M., Cantón, R., Calvo-Montes, J., & Tomás, M. (2023). CRISPR-Cas13a-Based Assay for Accurate Detection of OXA-48 and GES Carbapenemases. *Microbiology Spectrum*. <https://doi.org/10.1128/SPECTRUM.01329-23> **Cas13a**
120. Shaizadinova, A., Amanzholova, M., Kirillov, S., Bulashev, A., & Abeldenov, S. (2023). Rapid and highly sensitive LAMP-CRISPR/Cas12a-based identification of bovine mastitis milk samples contaminated by *Escherichia coli*. *Journal of Agriculture and Food Research*, 100721. <https://doi.org/10.1016/J.JAFR.2023.100721> **Cas12a**
121. Das, A. (2023). Cas protein diagnostics for pathogen nucleic acids. <https://doi.org/10.17863/CAM.100599> **Cas12a**
122. Alkaebi, F., Tahmasebi, P., & Alsultan, A. (2023). Comparative diagnostic performance of a Cas13-based assay for de-tecting COVID-19 cases in Al-Dewaniyah province, Iraq. *Bionatura Issue*, 4. <https://doi.org/10.21931/RB/CSS/2023.08.04.62> **Cas13**
123. Wu, Y., Zhan, J., Shan, Z., Li, Y., Liu, Y., Li, Y., Wang, Y., Liu, Z., Wen, X., & Wang, X. (2023). CRISPR-Cas13a-based detection method for avian influenza virus. *Frontiers in Microbiology*, 14. <https://doi.org/10.3389/FMICB.2023.1288951> **Cas13a**
124. Bhardwaj, P., Nanaware, N. S., Behera, S. P., Kulkarni, S., Deval, H., Kumar, R., Dwivedi, G. R., Kant, R., & Singh, R. (2023). CRISPR/Cas12a-Based Detection Platform for Early and Rapid Diagnosis of Scrub Typhus. *Biosensors 2023*, Vol. 13, Page 1021, 13(12), 1021. <https://doi.org/10.3390/BIOS13121021> **Cas12a**
125. Molina Vargas, A. M., Sinha, S., Osborn, R., Arantes, P. R., Patel, A., Dewhurst, S., Hardy, D. J., Cameron, A., Palermo, G., & O'Connell, M. R. (2013). New design strategies for ultra-specific CRISPR-Cas13a-based RNA detection with single-nucleotide mismatch sensitivity. *Nucleic Acids Research*, 1(1256879), 13–14. <https://doi.org/10.1093/NAR/GKAD1132> **Cas13a**
126. Jiang, W., Aman, R., Ali, Z., Rao, G. S., & Mahfouz, M. (2023). PNA-Pdx: Versatile Peptide Nucleic Acid-Based Detection of Nucleic Acids and SNPs. *Analytical Chemistry*, 95(38), 14209–14218. <https://pubmed.ncbi.nlm.nih.gov/37696750/> **Cas12b**
127. Lee, I., Kwon, S.-J., Heeger, P., & Dordick, J. S. (2023). Ultrasensitive ImmunoMag-CRISPR Lateral Flow Assay for Point-of-Care Testing of Urinary Biomarkers. *ACS Sensors*. <https://doi.org/10.1021/ACSSENSORS.3C01694>
128. Wang, Y., Hou, Y., Liu, X., Lin, N., Dong, Y., Liu, F., Xia, W., Zhao, Y., Xing, W., Chen, J., & Chen, C. (2023). Rapid visual nucleic acid detection of *Vibrio alginolyticus* by recombinase polymerase amplification combined with CRISPR/Cas13a. *World Journal of Microbiology and Biotechnology* 2023 40:2, 40(2), 1–11. <https://doi.org/10.1007/S11274-023-03847-2> **Cas13a**
129. Shashank, P. R., Parker, B. M., Rananaware, S. R., Plotkin, D., Couch, C., Yang, L. G., Nguyen, L. T., Prasannakumar, N. R., Braswell, W. E., Jain, P. K., & Kawahara, A. Y. (2024). CRISPR-based diagnostics detects invasive insect pests. *Molecular Ecology Resources*, 24(1), e13881. <https://doi.org/10.1111/1755-0998.13881>
130. Fan, Z., Mei, Y., Xing, J., Chen, T., Hu, D., Liu, H., Li, Y., Liu, D., Liu, Z., & Liang, Y. (2023). Loop-mediated isothermal amplification (LAMP)/Cas12a assay for detection of *Ralstonia solanacearum* in tomato. *Frontiers in Bioengineering and Biotechnology*, 11. <https://www.frontiersin.org/articles/10.3389/fbioe.2023.1188176/full>

## 5. Special Applications

### 5.1. Rolling Circle Amplification and Lateral Flow

1. Zingg, J. M., & Daunert, S. (2018). Trinucleotide rolling circle amplification: A novel method for the detection of RNA and DNA. *Methods and Protocols*, 1(2), 1–20. <https://doi.org/10.3390/mps1020015>
2. Lee, H. N., Lee, J., Yoo, ., Kang, K., Joo, ., Lee, H., Yang, S., & Chung, H. J. (2022). A Lateral Flow Assay for Nucleic Acid Detection Based on Rolling Circle Amplification Using Capture Ligand-Modified Oligonucleotides. *BioChip Journal* 2022, 1–10. <https://doi.org/10.1007/S13206-022-00080-1>

### 5.2. Aptamers and Lateral Flow

3. Fischer, C., Wessels, H., Paschke-Kratzin, A., & Fischer, M. (2017). Aptamers: Universal capture units for lateral flow applications. *Analytical Biochemistry*, 522, 53–60. <https://doi.org/10.1016/j.ab.2017.01.012>
4. Kacherovsky, N., Yang, L. F., Dang, H. V., Cheng, E. L., Cardle, I. I., Walls, A. C., McCallum, M., Sellers, D. L., DiMaio, F., Salipante, S. J., Corti, D., Veessler, D., & Pun, S. H. (2021). Discovery and Characterization of Spike N-Terminal Domain-Binding Aptamers for Rapid SARS-CoV-2 Detection. *Angewandte Chemie (International ed. in English)*, 10.1002/anie.202107730. Advance online publication. <https://doi.org/10.1002/anie.202107730>
5. Amini, R., Zhang, Z., Li, J., Gu, J., Brennan, J. D., & Li, Y. (2022). Aptamers for SARS-CoV-2: Isolation, Characterization, and Diagnostic and Therapeutic Developments. *Analysis & Sensing*, 2022, e202200012. <https://doi.org/10.1002/ANSE.202200012>

### 5.3. XNA-based Nucleic Acid Detection

6. Yang, K., & Chaput, J. C. (2021). REVEALR: A Multicomponent XNAzyme-Based Nucleic Acid Detection System for SARS-CoV-2. *Journal of the American Chemical Society*, 143(24), 8957–8961. <https://doi.org/10.1021/jacs.1c02664> RNA

### 5.4. Thermophilic helicase dependent isothermal Amplification (tHDA)

7. Zasada, A. A., Zacharczuk, K., Formińska, K., Wiatrzyk, A., Ziółkowski, R., & Malinowska, E. (2018). Isothermal DNA amplification combined with lateral flow dipsticks for detection of biothreat agents. *Analytical biochemistry*, 560, 60–66. <https://doi.org/10.1016/j.ab.2018.09.008>
8. Zasada, A. A., Mosiej, E., Prygiel, M., Polak, M., Wdowiak, K., Formińska, K., Ziółkowski, R., Żukowski, K., Marchlewicz, K., Nowiński, A., Nowińska, J., Rastawicki, W., & Malinowska, E. (2022). Detection of SARS-CoV-2 Using Reverse Transcription Helicase Dependent Amplification and Reverse Transcription Loop-Mediated Amplification Combined with Lateral Flow Assay. *Biomedicines* 2022, Vol. 10, Page 2329, 10(9), 2329. <https://doi.org/10.3390/BIMEDICINES10092329>

### 5.5. Cross Priming Amplification (CPA)

9. Prasitporn, T., Senapin, S., Vaniksampanna, A., Longyant, S., & Chaivisuthangkura, P. (2021). Development of cross-priming amplification (CPA) combined with colorimetric and lateral flow dipstick visualization for scale drop disease virus (SDDV) detection. *Journal of fish diseases*, 10.1111/jfd.13448. Advance online publication. <https://doi.org/10.1111/jfd.13448> RNA

## 5.6. Recombinase-aided Amplification (RAA)

10. Xia, W., Chen, K., Liu, W., Yin, Y., Yao, Q., Ban, Y., Pu, Y., Zhan, X., Bian, H., Yu, S., Han, K., Yang, L., Wang, H., & Fan, Z. (2022). Rapid and visual detection of *Mycoplasma synoviae* by recombinase-aided amplification assay combined with a lateral flow dipstick. *Poultry Science*, 101(7), 101860. <https://doi.org/10.1016/J.PSJ.2022.101860>
11. Mao, L., Ying, J., Selekon, B., Gonofio, E., Wang, X., Nakoune, E., Wong, G., & Berthet, N. (2022). Development and Characterization of Recombinase-Based Isothermal Amplification Assays (RPA/RAA) for the Rapid Detection of Monkeypox Virus. *Viruses* 2022, Vol. 14, Page 2112, 14(10), 2112. <https://www.mdpi.com/1999-4915/14/10/2112>
12. Zhu, X., Zhao, Y., Zhu, C., Wang, Y., Liu, Y., & Su, J. (2022). Rapid detection of *cagA*-positive *Helicobacter pylori* based on duplex recombinase aided amplification combined with lateral flow dipstick assay. *Diagnostic Microbiology and Infectious Disease*, 103(1), 115661. <https://doi.org/10.1016/J.DIAGMICROBIO.2022.115661>
13. Bienes, K. M., Mao, L., Selekon, B., Gonofio, E., Nakoune, E., Wong, G., & Berthet, N. (2022). Rapid Detection of the Varicella-Zoster Virus Using a Recombinase-Aided Amplification-Lateral Flow System. *Diagnostics*, 12(12), 2957. <https://doi.org/10.3390/DIAGNOSTICS12122957/S1>
14. Aiyong, W., Ju, L., Cilin, W., Yuxuan, H., Baojun, Y., Jian, T., & Shuhua, L. (2023). Establishment and application of the Recombinase-Aided Amplification-Lateral Flow Dipstick detection method for *Pantoea ananatis* on rice. *Australasian Plant Pathology*, 1, 1–9. <https://doi.org/10.1007/S13313-023-00918-8/FIGURES/5>
15. Zhou, Y., Zhang, J., Sun, H., Tao, D., Xu, B., Han, X., Ren, R., Ruan, J., Steinaa, L., Hemmink, J. D., Han, J., Li, X., Xu, J., Zhao, S., Xie, S., & Zhao, C. (2023). Sensitive and Specific Exonuclease III-Assisted Recombinase-Aided Amplification Colorimetric Assay for Rapid Detection of Nucleic Acids. *ACS Synthetic Biology*. <https://doi.org/10.1021/ACSSYNBIO.3C00137>
16. Balea, R., Pollak, N. M., Hobson-Peters, J., Macdonald, J., & McMillan, D. J. (2023). Development and pre-clinical evaluation of a Zika virus diagnostic for low resource settings. *Frontiers in Microbiology*, 14, 1214148. <https://doi.org/10.3389/FMICB.2023.1214148>

## 5.7. EXPONENTIAL Amplification Reaction (EXPAR)

17. Cheng, X. R., Wang, F., Liu, C. yun, Li, J., Shan, C., Wang, K., Wang, Y., Li, P. F., & Li, X. M. (2022). Sensitive naked-eye detection of telomerase activity based on exponential amplification reaction and lateral flow assay. *Analytical and Bioanalytical Chemistry* 2022 414:20, 414(20), 6139–6147. <https://doi.org/10.1007/S00216-022-04179-0>

## 5.8. Multienzyme Isothermal Rapid Assay (MIRA)

18. Li, M. chao, Lu, Y., Liu, H. can, Lin, S. qiang, Qian, C., Nan, X. tian, Li, G. lian, Zhao, X. qin, Wan, K. L., & Zhao, L. li. (2023). Rapid detection of fluoroquinolone resistance in *Mycobacterium tuberculosis* using a novel multienzyme isothermal rapid assay. *The Journal of Antibiotics* 2023 76:10, 76(10), 598–602. <https://doi.org/10.1038/s41429-023-00639-6>