

Clarivate and CAS Identify 125 Cutting-Edge Research Fronts in Annual Report

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Clarivate Plc and the Chinese Academy of Sciences (CAS) have released the 2024 “[Research Fronts™ report](#)”. This collaborative initiative, now in its eleventh year, highlights 125 dynamic areas of scientific and social science research. Furthermore, it provides a roadmap for innovation and discovery.

Insights From the 2024 Research Fronts Report

The report categorizes 110 “hot” Research Fronts, representing highly active fields, and 15 “emerging” Research Fronts across 11 scientific domains. These areas include agricultural sciences, ecology, geosciences, clinical medicine, and more, showcasing global advancements in science and technology. Using enhanced co-citation analysis, the study analyzed data from 2018–2023 and incorporated new metrics to ensure accuracy and relevance. Clarivate analysts used the Essential Science Indicators (ESI™) database, derived from the Science Citation Index Expanded (SCIE™) and Social Sciences Citation Index (SSCI™), to analyze five years of citation data. Each research area highlights specific trends that reflects the evolution of science in

addressing critical global challenges.

This year's highlights include breakthroughs in clinical medicine, such as the use of monoclonal antibodies for early Alzheimer's treatment, which holds promise for combating this debilitating disease. In social sciences, a pivotal Research Front explores the role of Generative AI in education, showcasing its transformative potential in learning and development.

Furthermore, it was identified that China leads in research output, followed by the USA and European nations. Notably, Chinese institutions like the Chinese Academy of Sciences dominate multiple fields, highlighting the nation's robust investment in R&D. The report also emphasizes the role of collaboration, with multinational efforts driving progress in areas like RNA modifications, DAC technology, and single-cell transcriptomics. Institutions from Germany, Japan, and the UK also play pivotal roles in expanding the research landscape.

Future Implications

The report highlights the growing intersection of innovation, technology, and global challenges. Emerging technologies deep transfer learning in agriculture and advances in quantum computing exemplify science's pivotal role in shaping the future. With nations like China and the USA at the forefront, the path forward demands enhanced international cooperation to address environmental, medical, and technological needs.

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