

Chemical Biology of Gene Expression and Cell Differentiation

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In human history, small organic molecules have been utilized for improving human health and for revealing secrets of life. Discovery or design of small organic molecules with unique biological activity permits small-molecule-initiated exploration of biology and further understanding of human diseases. Our laboratory has been discovering small organic molecules that modulate transcription or differentiation to use them as tools to explore biology. Such chemistry-initiated biology is recently called chemical biology, an emerging field of biology and medical sciences. Chemical biology is not drug discovery but basic biological research to understand human diseases or complex biological events. Nevertheless, chemical biology research may “catalyze” future drug discovery thorough the knowledge and technology gained in the basic research. This presentation provides a quick overview of the chemical biology research in our group.