Broad-Spectrum Anti-Influenza Drugs From Multi-Component Reactions

**Title:** Broad-Spectrum Anti-Influenza Drugs from Multi-Component Reactions

**Invention:** This technology is an innovative approach that explores expeditious multi-component reactions for the synthesis of broad-spectrum anti-influenza small-molecules. The promising influenza virus inhibitors are active against multiple human clinical isolates of influenza A and B viruses, including strains that are resistant to oseltamivir.

**Background:** Despite the presence of vaccines worldwide, the annual death toll attributed to influenza virus infection is approximately 500,000. Current influenza virus vaccines do not protect against novel pandemic strains, have little-to-no efficacy in children and the elderly, and need to be reformulated almost every year due to antigenic drift. In addition to vaccines, there are two classes of anti-influenza drugs: M2 inhibitors (amantadine and rimantadine) and neuraminidase inhibitors (oseltamivir), both with continued documentation of resistance. Therefore, there is an urgent need for a new class of therapies that can overcome the resistance issues facing current therapies.

**Applications:**
- Anti-influenza virus therapeutics

**Advantages:**
- Exhibits broad-activity against many influenza virus strains and types
- Acts via a novel mechanism with great potential to overcome challenges associated with the current therapies
- The molecules are synthesized using multicomponent reactions, which have the ability to dramatically reduce the number of iterations required for value chain progression in drug discovery
- Utilizes both high-throughput synthesis and high-throughput screening, increasing speed and cost-effectiveness
- Potential to be the next-generation of broad-spectrum antiviral treatment
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