

Synthesis of BNM-III-170 bis TFA salt and development of concise synthesis

MCS Capstone Virtual Poster

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4.28.2021

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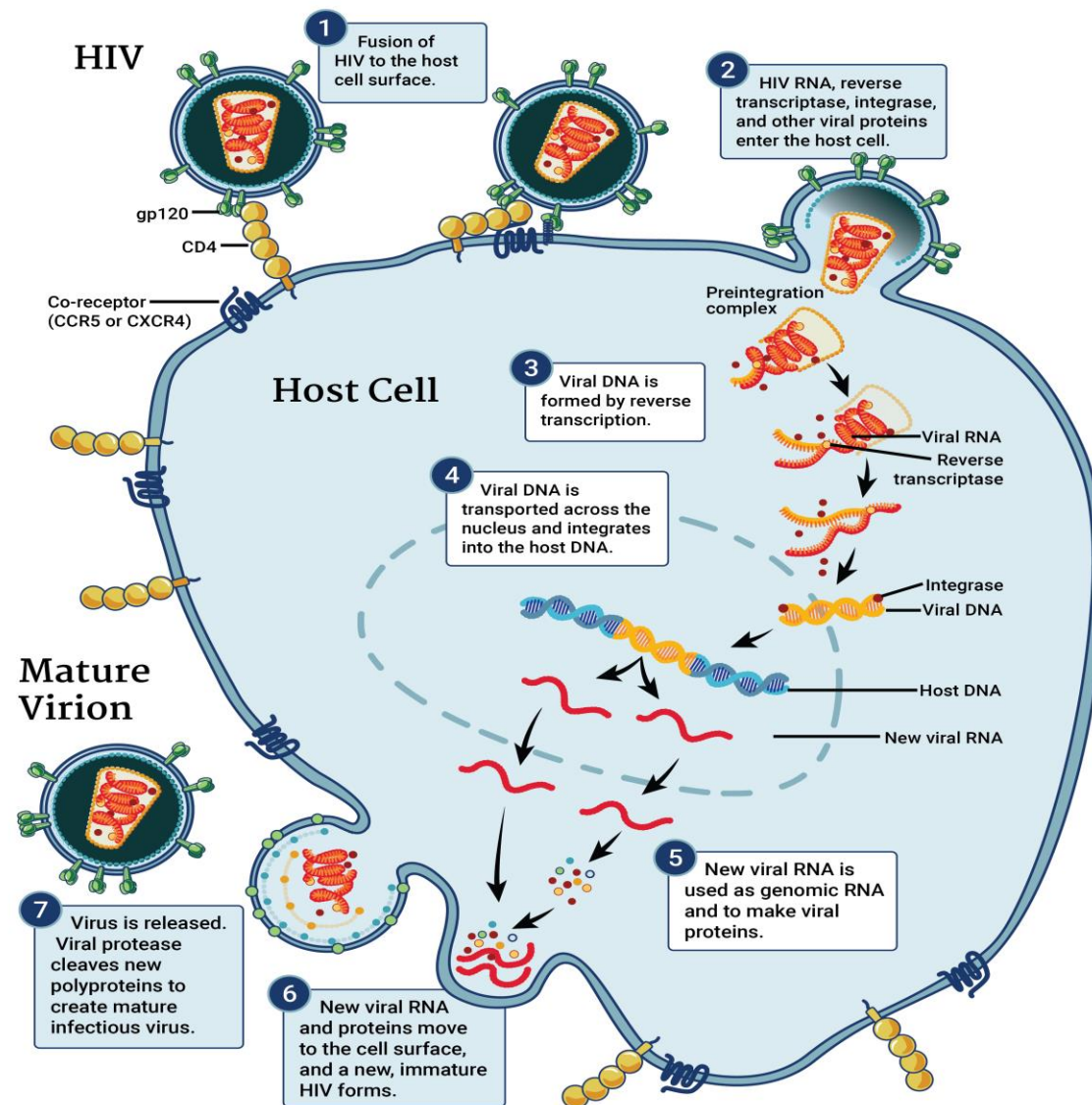
Committee: Prof. David M. Chenoweth (Chair)

Prof. Donna Huryn, Prof. William P. Dailey

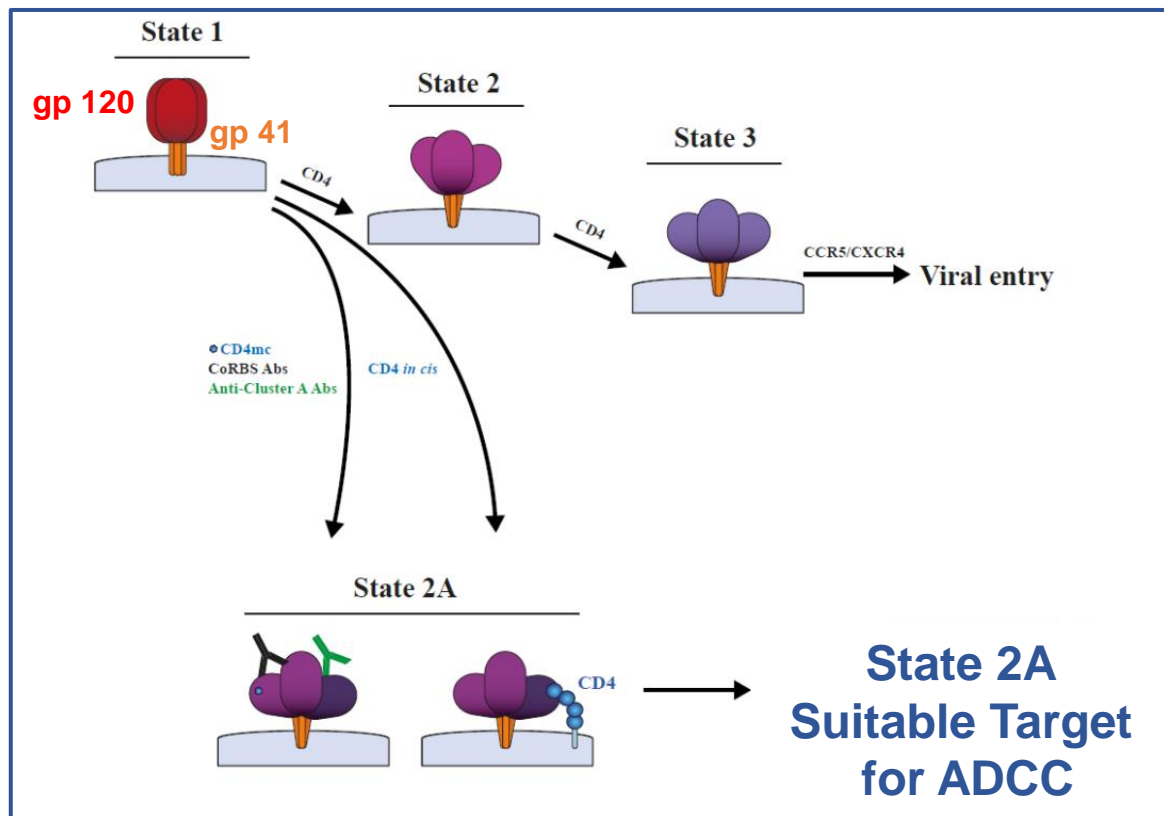
MCS Academic Advisor: Dr. Ana-Rita Mayol

HIV/AIDS

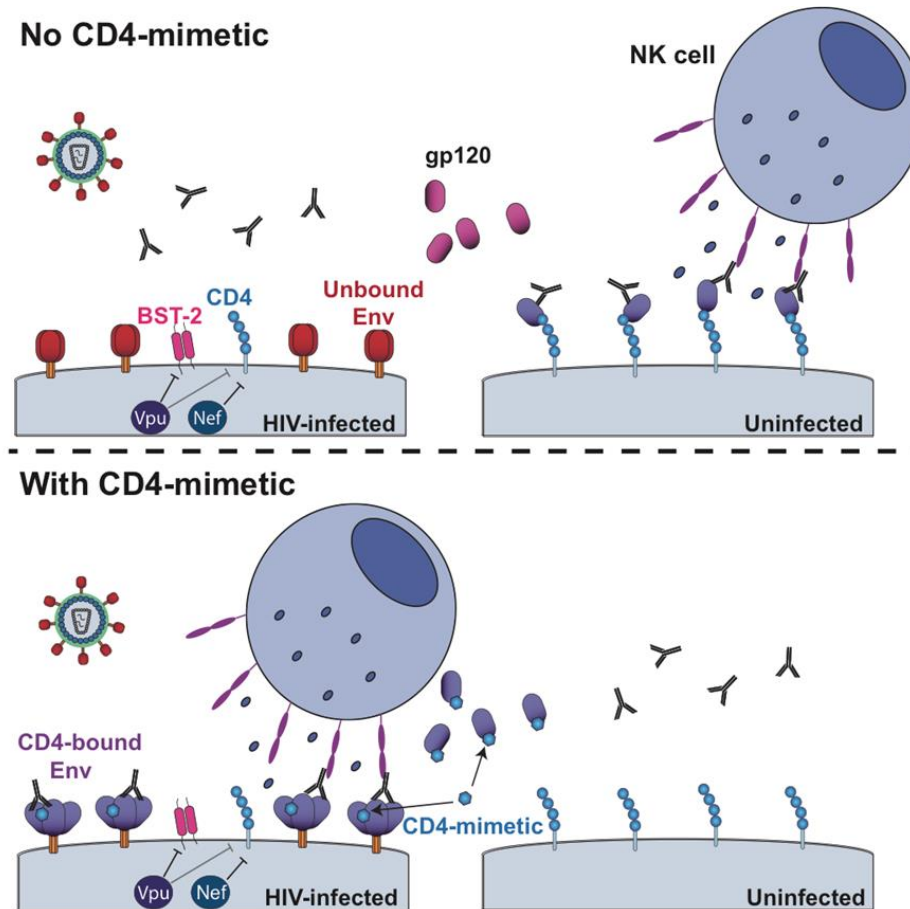
1. Almost **33** million people have died of AIDS-related illnesses.
2. Estimated **38** million people living with HIV at the end of 2019.
3. In 2019, **690,000** people died from HIV-related causes and **1.7** million people were newly infected.
4. Current therapeutic approaches involve Highly Active Antiretroviral Therapy (HAART) which can achieve suppression of the HIV virus with no risk of infecting others. However, resistance mutations and issues of toxicity, tolerability and compliance limit the effectiveness.
5. Current therapies fail to deplete the latent viral reservoirs, therefore they are not curative.



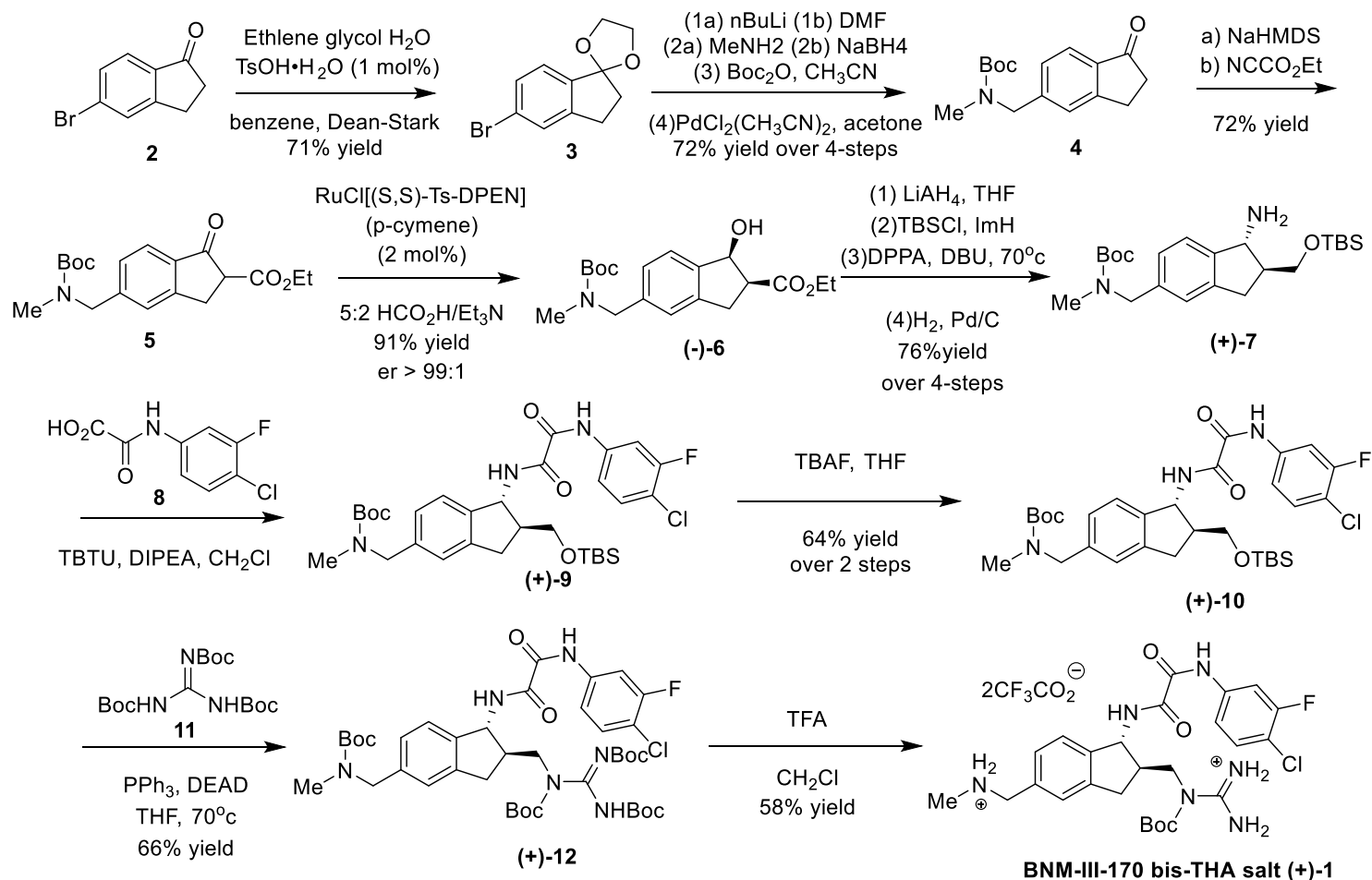
Binding of HIV glycoprotein with CD4mc



ADCC: Antibody-dependent cellular cytotoxicity

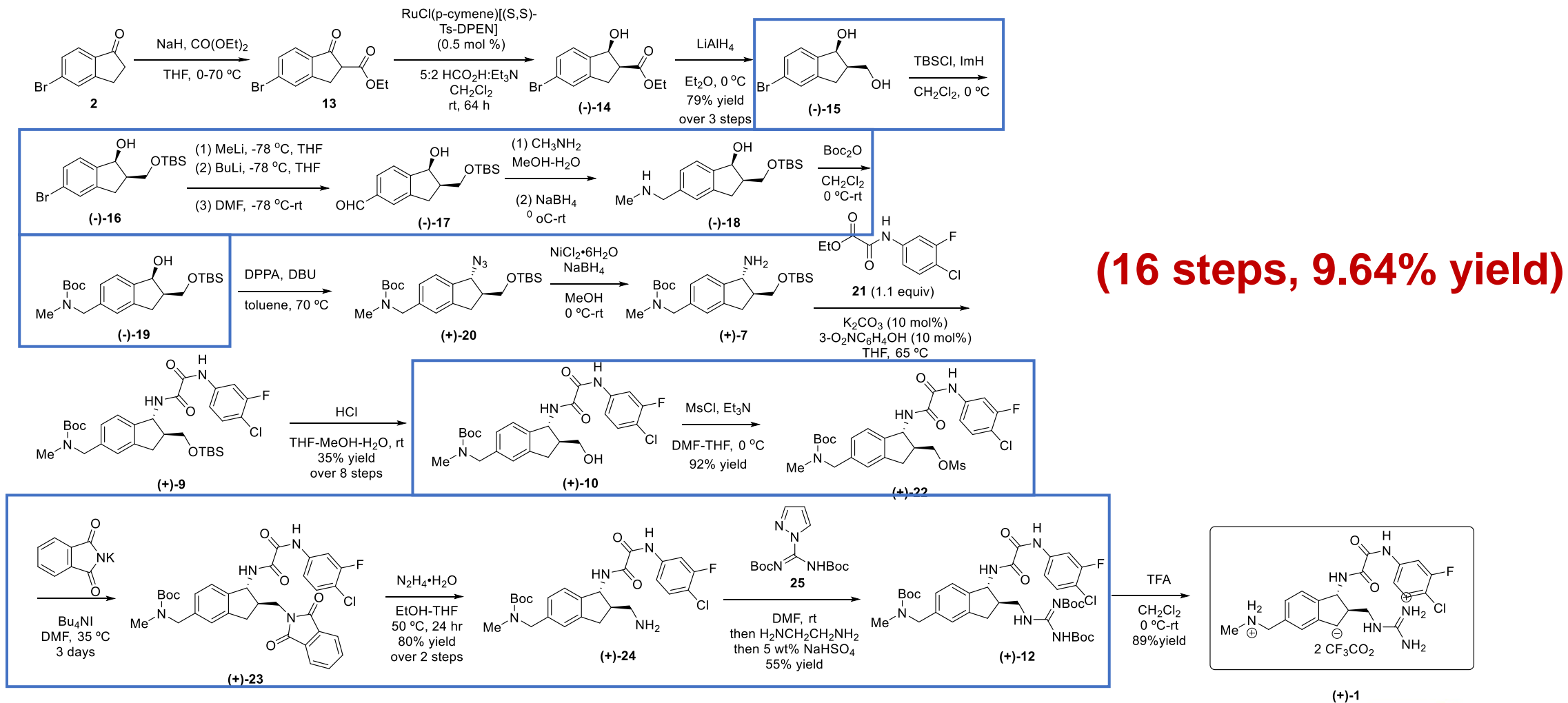


First Generation Synthesis of BNM-III-170



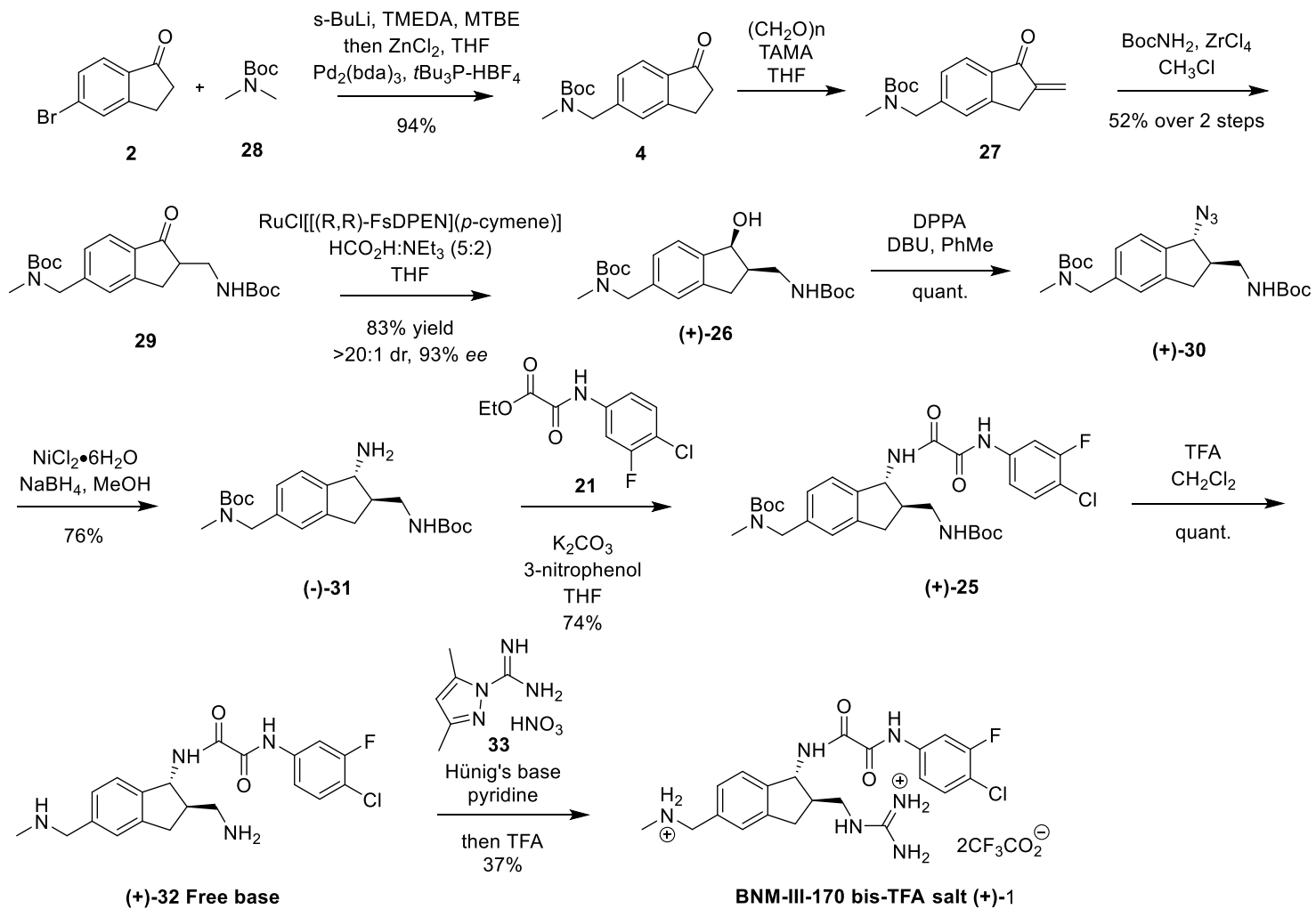
(15 steps, 6.2% yield)

Scaled up Synthesis of BNM-III-170



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Concise Synthesis of BNM-III-170



(9 steps, 8.44% yield)

FUNDING AND SUPPORT

HIV Entry Antagonists
P01-GM 56550



Joseph Sodroski (Harvard)
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Crystallography Team

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