

# Novel synthesis of the homologs of natural nucleosides

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Homologated nucleoside analogs are frequently studied for their antiviral activity. They are effective for the treatment of infectious species like the herpes virus, varicella-zoster viruses and retroviruses like HIV (Human Immunodeficiency Virus). Successful synthesis of these organic compounds has been achieved in the past through the transformation of the alcohol functionality into a carbonyl, often followed by Wittig reaction or Ardn-Eistert homologation. Additionally, others have generated the homologated sugar moiety and then proceeded with the coupling to nucleobases. Researchers from Palacky University recently developed novel methodology for the homologation of primary and secondary alcohols. They generated the homologated esters of the alcohols via Mitsunobu reaction using  $\alpha$ -carbonyl benzothiazole sulfone (BT-SH) followed by oxidation, alkylation and desulfonylation. Homologation of the 2',3' and 5' positions of all natural nucleosides (adenosine A, guanosine G, cytosine C, thymine T and uracil U) will be attempted employing this promising method. The resulting ester will then be reduced to a primary alcohol to yield the homologated nucleoside.

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