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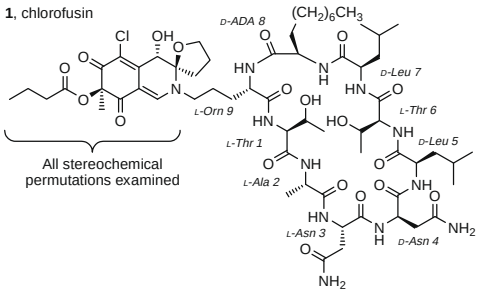
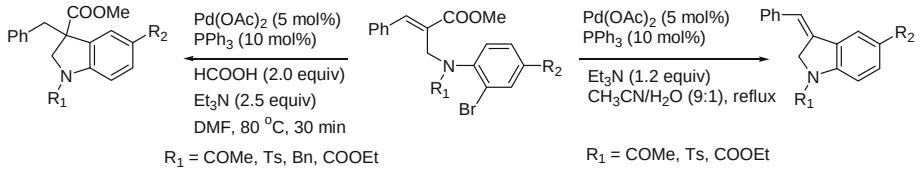
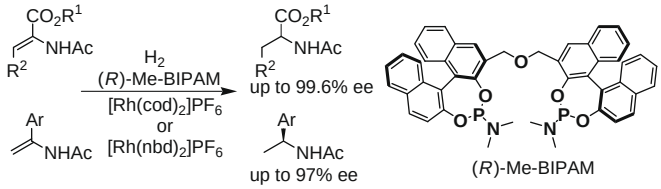
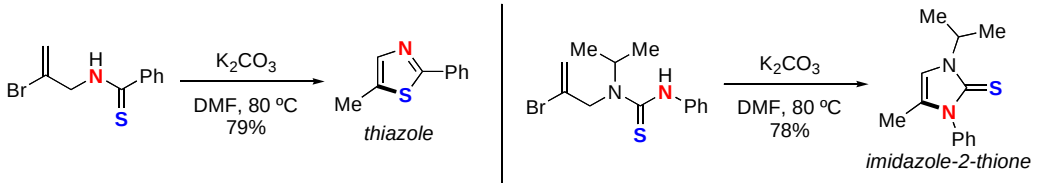
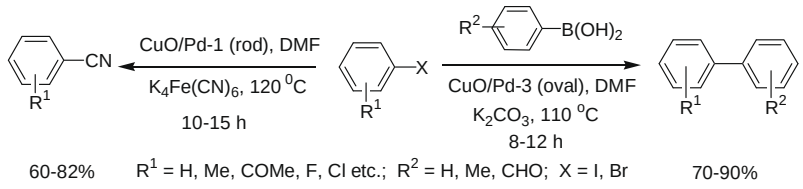
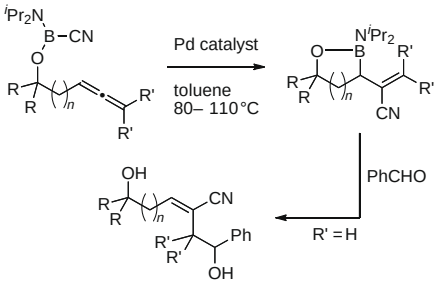




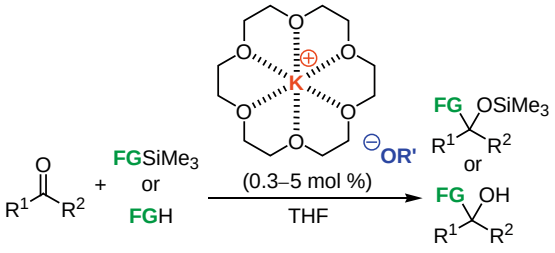


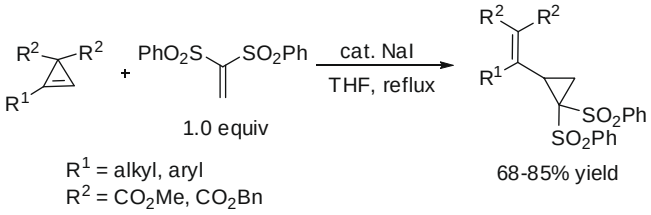




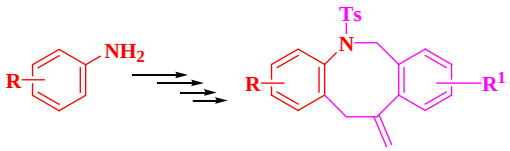


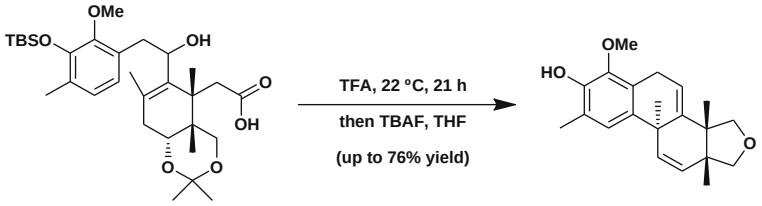
Intramolecular addition of the boron-cyanide bond of cyanoboranes across C=C bond of allenes took place in the presence of a palladium catalyst to afford β-cyanoallylboranes, which reacted with aldehydes to form allylation products.

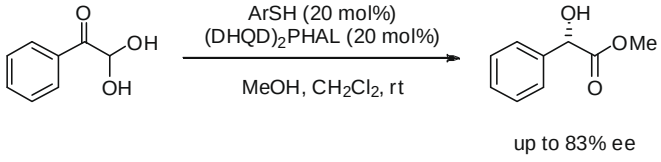


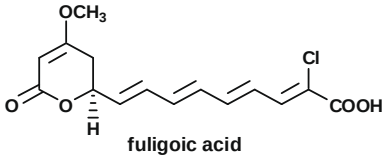


A NaI-catalyzed reaction of 3,3-bis(alkoxycarbonyl)cyclopropenes in the presence of 1,1-bis(phenylsulfonyl)ethylene providing an efficient route to a series of polyfunctionalized vinyl cyclopropanes is described. The reaction is general for a range of different 3,3-bis(alkoxycarbonyl)cyclopropenes affording the products in moderate to high yields. A plausible rationale for this transformation is discussed.



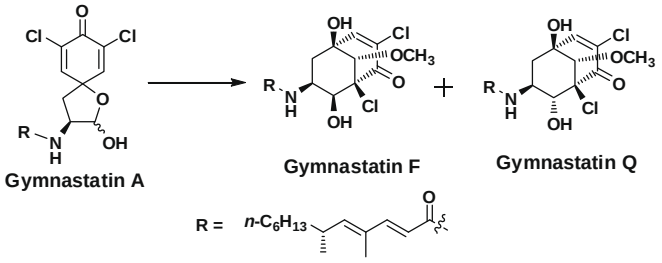


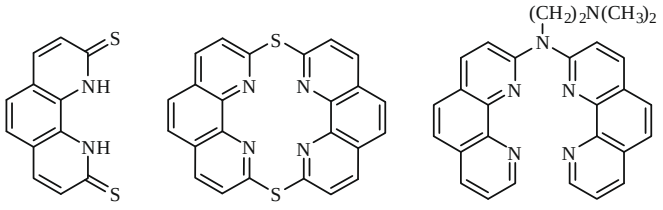


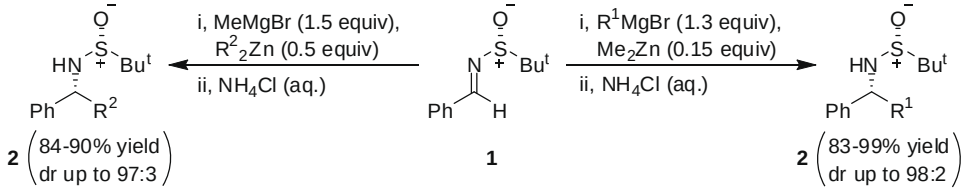


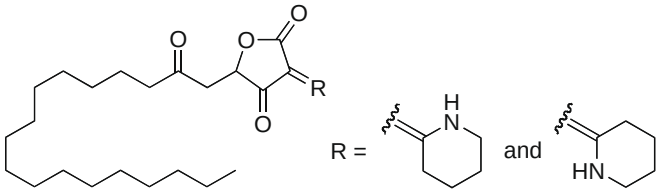
fuligoic acid

Chemical analysis of the myxomycete *Fuligo septica* f. *flava* led to the isolation of fuligoic acid, a new chlorinated polyene–pyrone acid.

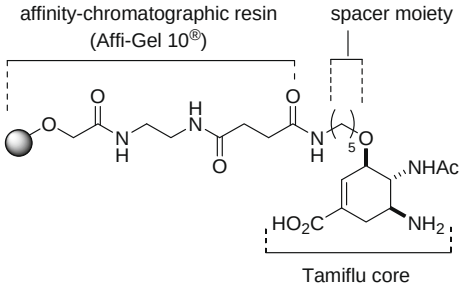




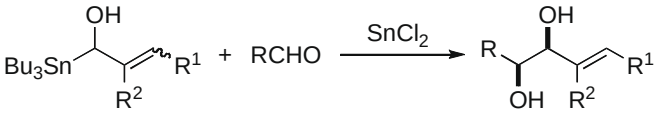




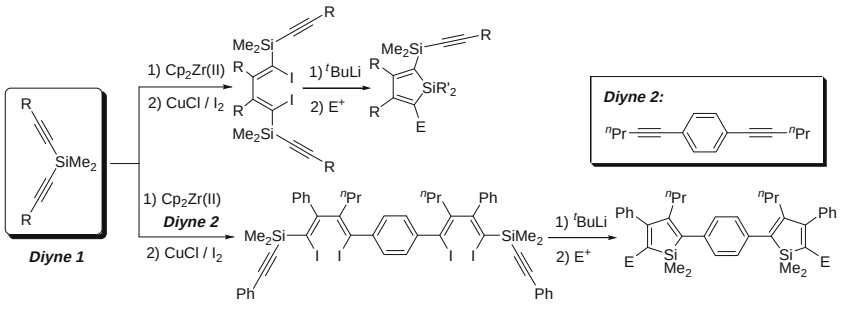
plakoridine C

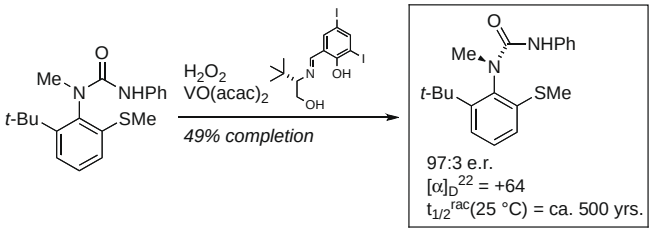


An immobilized Tamiflu analog for affinity chromatography was synthesized to identify possible endogenous target proteins in vertebrates.

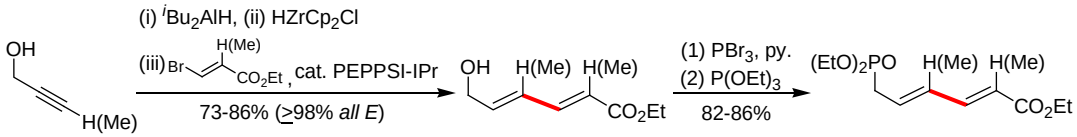


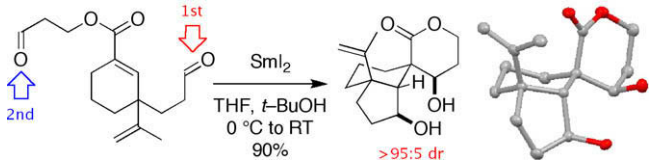
Preparation of hydroxyallylic stannanes by the reaction of an α,β-unsaturated aldehyde with Bu_3SnLi and their addition to aldehydes in the presence of $SnCl_2$ to give vicinal diols in a highly stereoselective manner.



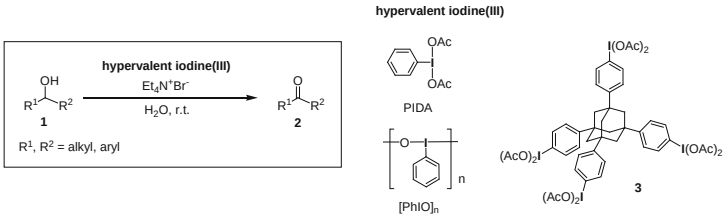


Kinetic resolution in the oxidation of sulfanylureas to sulfinylureas yields enantiomerically enriched atropisomers.

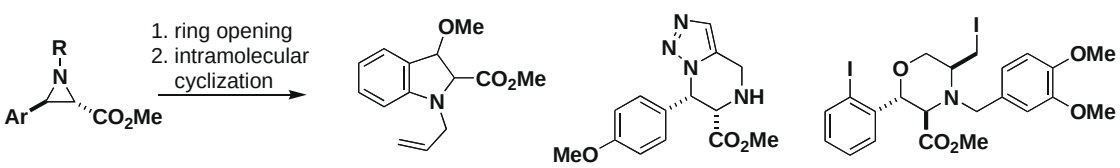




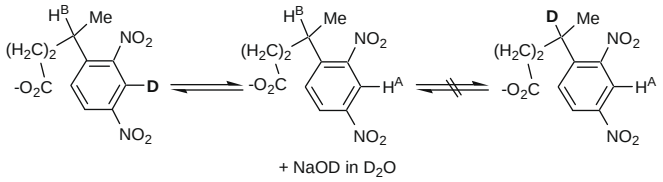
Dialdehydes undergo sequenced SmI_2-mediated cyclization cascades generating four contiguous stereocenters with high diastereocontrol.



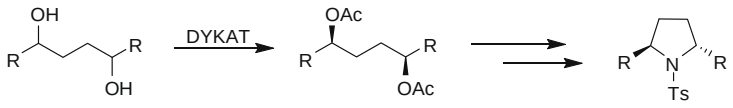
We have found that the use of a hypervalent iodine(III)/$Et_4N^+Br^-$ combination *in water* can significantly enhance its oxidation ability and oxidize a wide range of alcohols **1** to carbonyl compounds **2** without racemization. Utilization of the recyclable reagent **3** as a more practical alternative to $PhI(OAc)_2$ is also successful in these reactions.

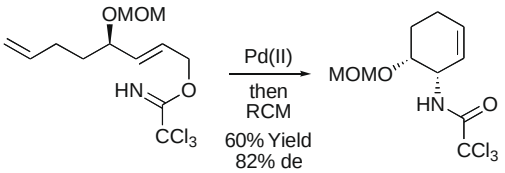


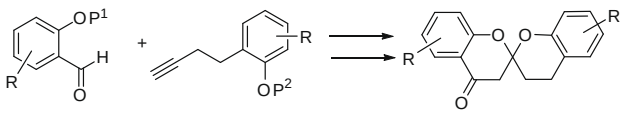
The efficient synthesis of small molecules that collectively comprise optimal small-molecule screening collections is an important goal. With this in mind, we have used *N*-alkyl aziridines in a regio- and stereochemically controlled synthesis of polycyclic heterocycles based on nucleophilic ring opening and subsequent intramolecular cyclization.



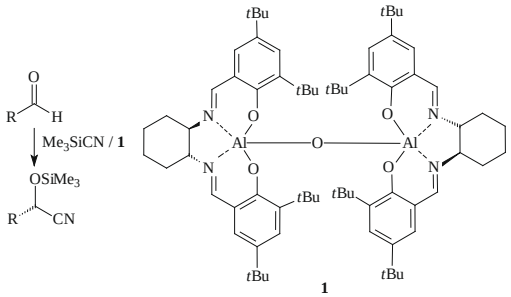
Isotopic exchange in a water-soluble 2,4-dinitroalkyl benzene occurs exclusively at the 3-position of the benzene ring and is readily observed by H NMR spectroscopy.



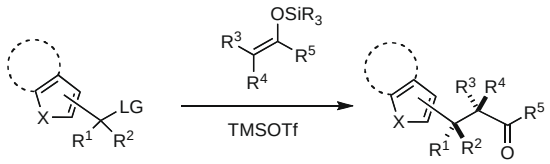


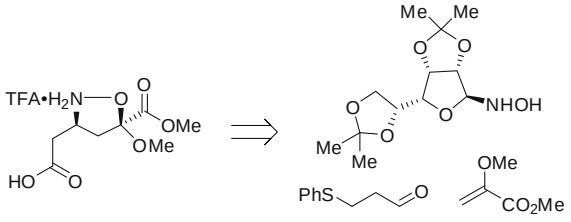


The synthesis of a series of 6,6-bisbenzannulated spiroketals using a novel microwave-assisted DIHMA approach is reported.

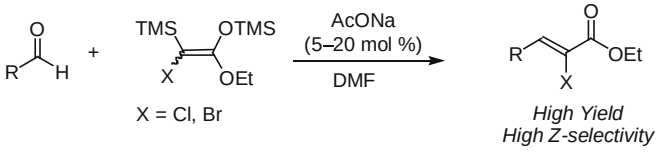


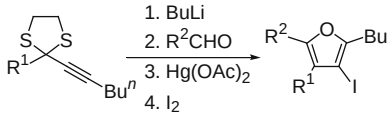
In the presence of a phosphine oxide cocatalyst, bimetallic aluminium(salen) complex **1** was found to catalyse the asymmetric addition of trimethylsilyl cyanide to aldehydes.

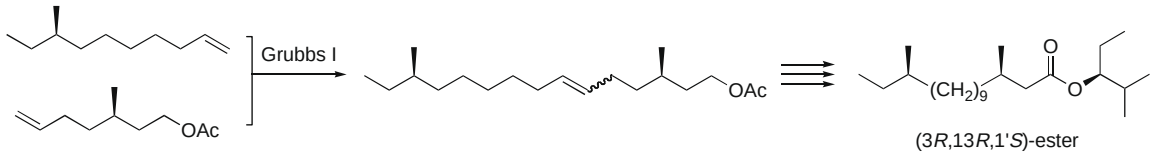


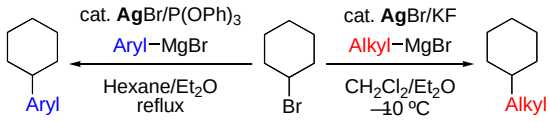


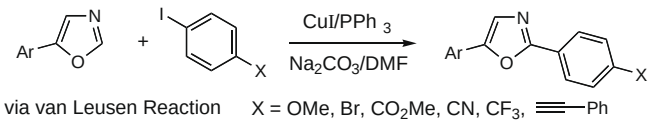
The synthesis of an enantiopure isoxazolidine monomer for the incorporation of β^3-aspartic acid residues into β^3-oligopeptides via chemoselective α-ketoacid–hydroxylamine amide formation.

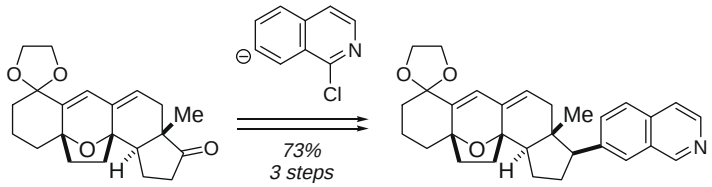


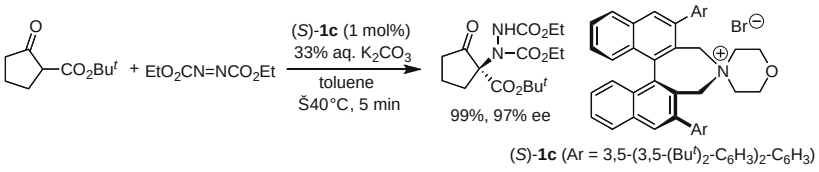




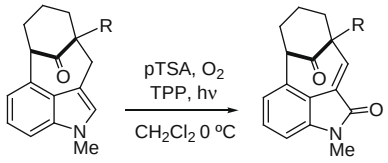




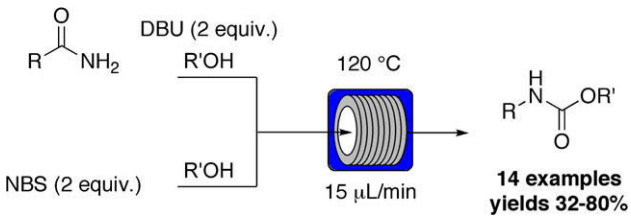




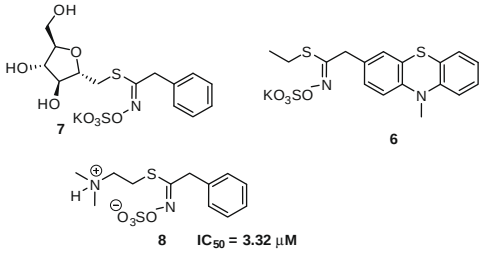
A highly efficient asymmetric amination of β-keto esters was achieved with high enantioselectivity under phase transfer conditions using chiral quaternary ammonium bromide as a catalyst.

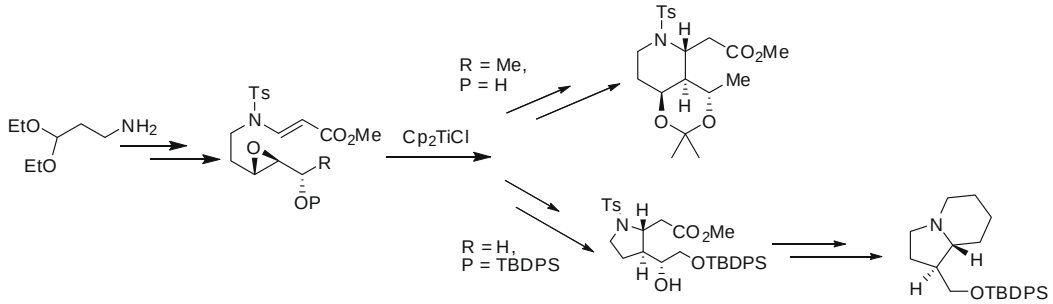


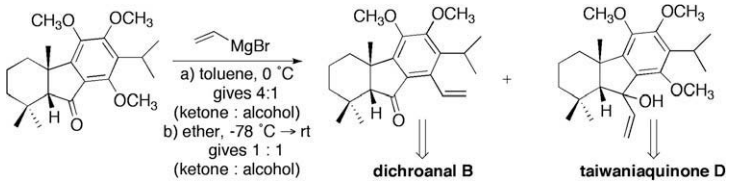
A series of conformationally restricted bridged indoles, having structures related to the natural alkaloid *N*-methylwelwitindolinone C isothiocyanate (welwistatin), are oxidised to the corresponding α,β-unsaturated oxindoles by treatment with singlet oxygen.



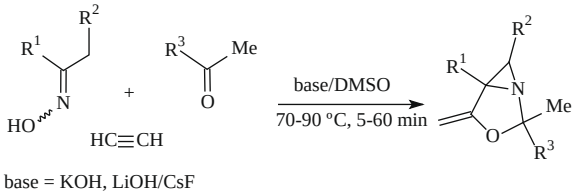
We report on the use of commercially available chemical microreactors to effect the Hofmann rearrangement of aromatic amides to the corresponding carbamates.



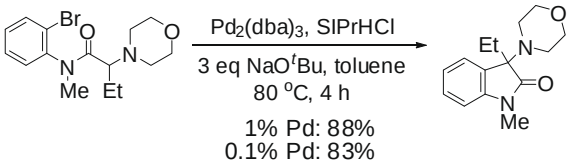




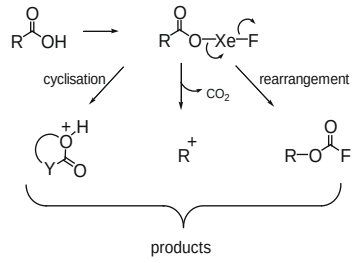
The total syntheses of dichroanone and dichroanal B, as well as the formal syntheses of taiwaniaquinol B and taiwaniaquinone D, are reported.

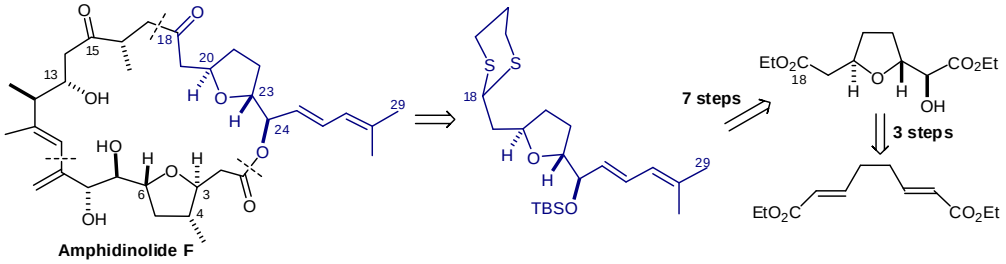


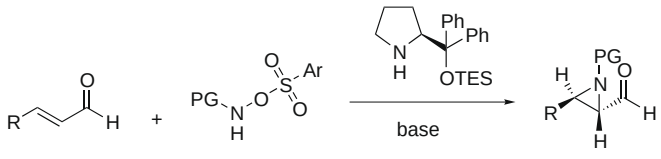
base = KOH, LiOH/CsF

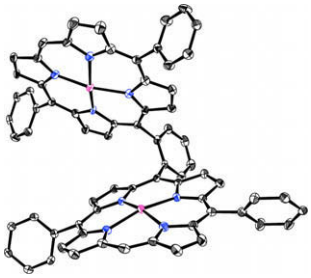


Screening identifies Pd(0)/SIPr complexes as robust and efficient catalysts for intramolecular enolate arylation reactions leading to 3-aminooxindoles.

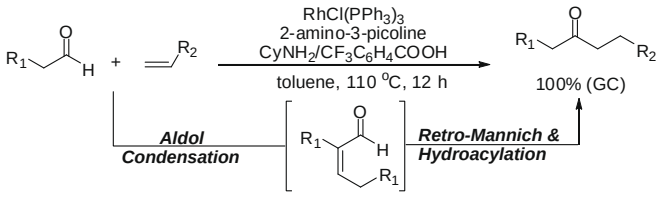


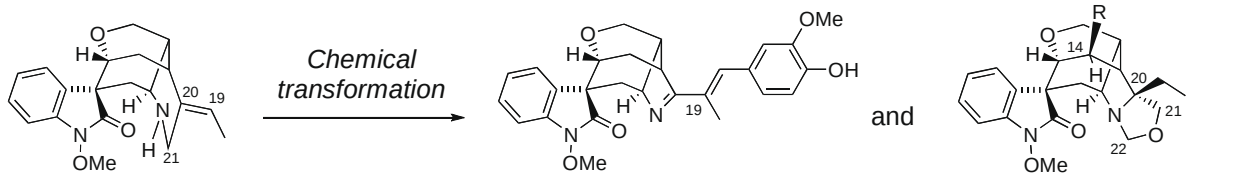






Facile synthesis of 1,2-phenylene-bridged porphyrin dimers via Pd-catalyzed cross-coupling reaction and their photophysical properties are reported.

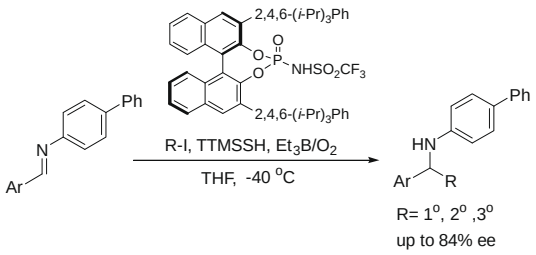


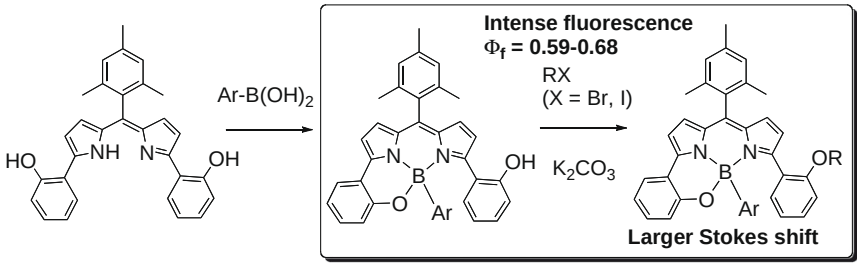


Rankinidine (**4**)

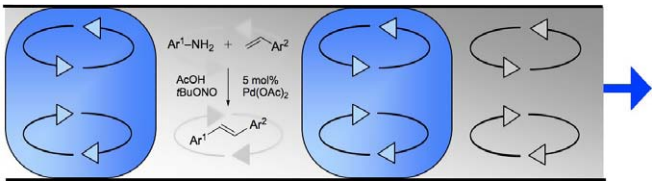
Gelsevanillidine (**1**)

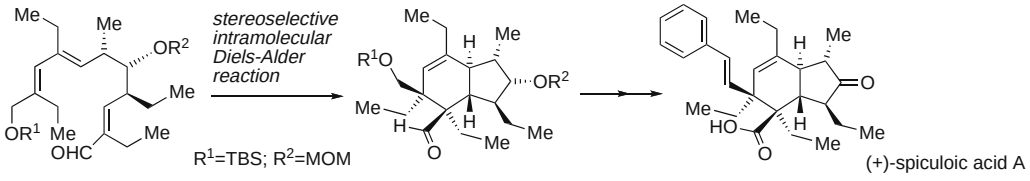
R=H: **3**
R=OAc: Gelseoxazolidinine (**2**)

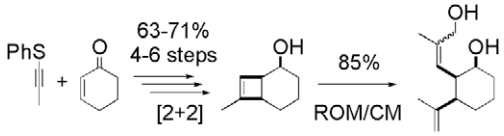




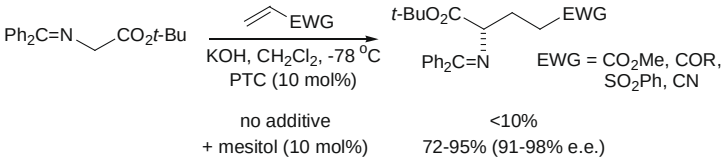
Unique fluorescent boron–dipyrrins bearing an aryl group and a phenyloxy group linked directly to the boron center have been prepared in high yields from arylboronic acid.

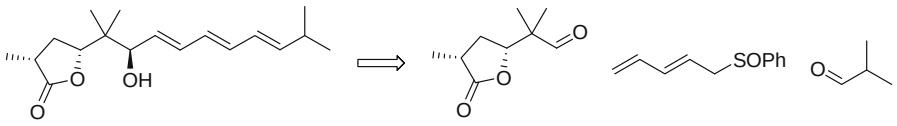


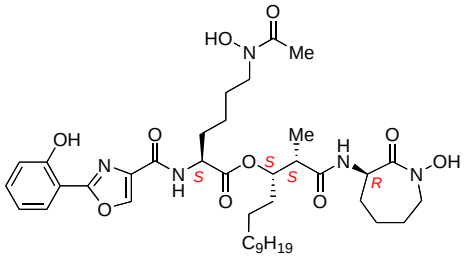




A highly effective procedure is reported to synthesize a substituted bicyclo[4.2.0]octenol derivative by regioselective cycloaddition of phenyl-1-propynyl sulfide with cyclohexenone followed by selective reduction of the ketone group and reductive elimination of phenylsulfonyl group. The strained cyclobutene ring was then engaged in a ring-opening/cross metathesis sequence in the presence of Hoveyda–Grubbs 2nd generation catalyst.

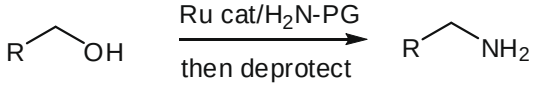




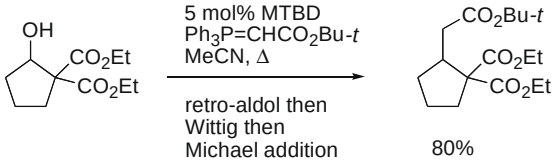


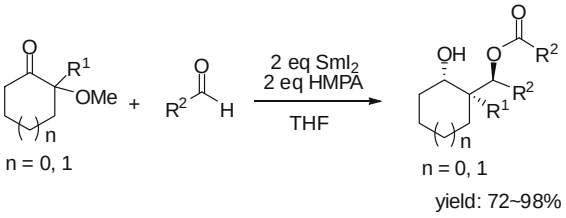
Proposed structure for nocardimicin B

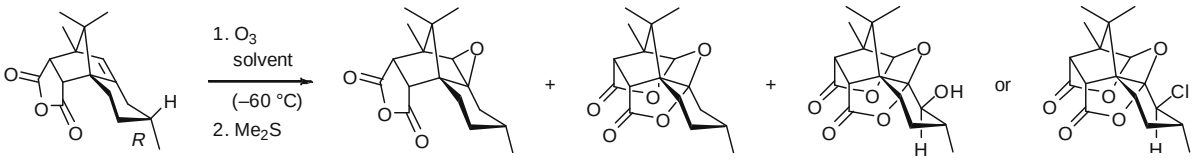
The total synthesis of the reported structure of the siderophore natural product nocardimicin B is described.

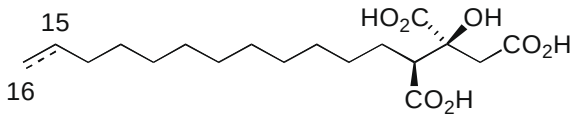


Alcohols have been converted into a variety of protected amines using ruthenium-catalysed borrowing hydrogen methodology. Representative examples have been deprotected leading to an overall conversion of ROH into RNH_2.

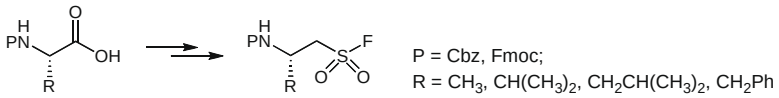


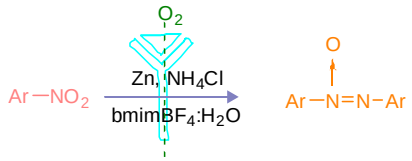




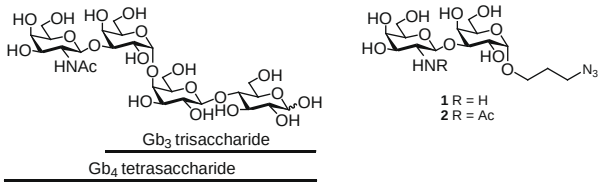


CJ-13,981 (**1**) (15,16-olefin)
CJ-13,982 (**2**) (15,16-dihydro)

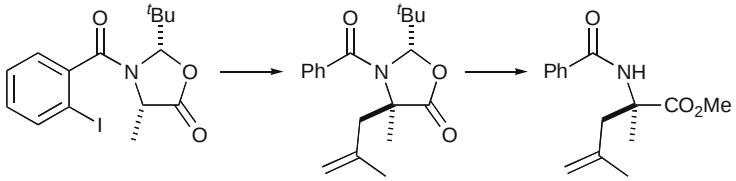




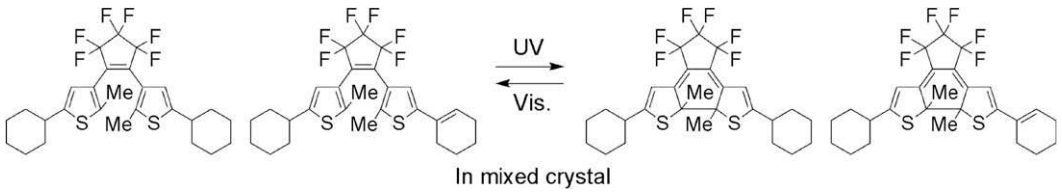
Azoxyarenes have been selectively obtained from the corresponding nitro compounds through a zinc-mediated reduction moderated by oxygen.



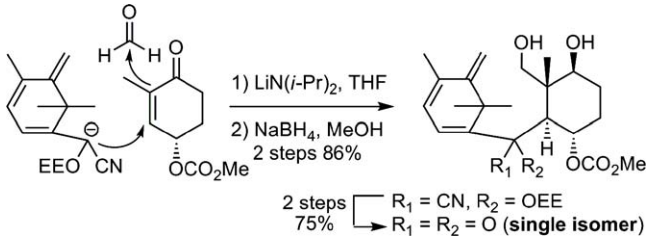
Non-reducing terminal disaccharide fragments of Gb_4 and de-*N*-acetyl Gb_4 glycolipid were prepared as potential ligands for *Escherichia coli* verotoxin.



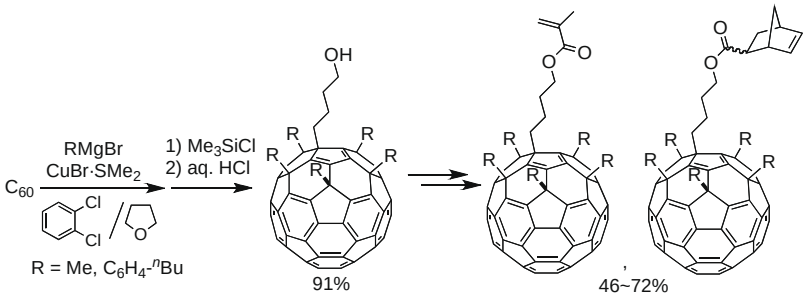
1,5-Hydrogen atom transfer in *N*-(2-iodobenzoyl)oxazolidin-5-ones facilitates the α-allylation of proteinogenic amino acids.

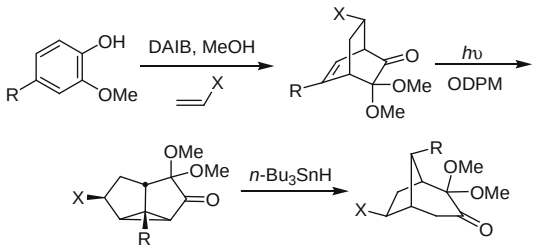


Two diarylethene derivatives having cyclohexyl and cyclohexenyl groups formed a mixed crystal composed of almost equal amounts of the two components, and underwent photochromism in the mixed crystal.

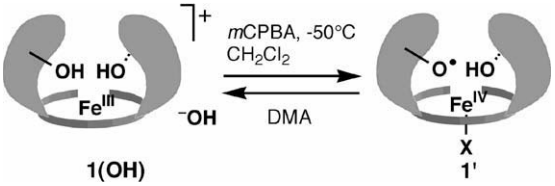


A new method for the construction of the AC ring system of taxanes is described. The key step is the successful application of the stereoselective one-pot three-component coupling of a protected cyanohydrin ether with a substituted cyclohexenone and formaldehyde.

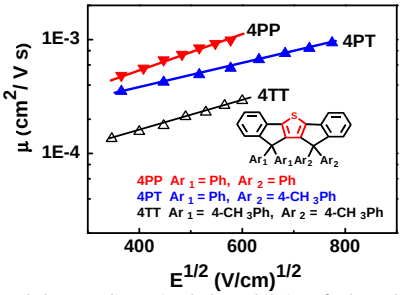




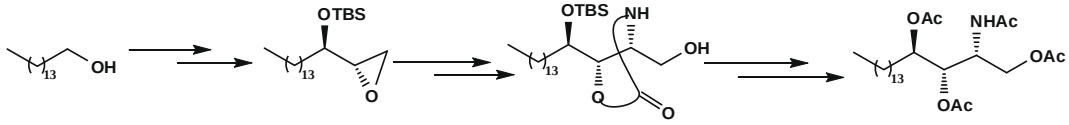
We herein report an efficient and rapid strategy for the synthesis of highly functionalized bicyclo[3.2.1]octanones by sequential '*Diels–Alder* reaction of MOB–ODPM rearrangement—reductive cleavage of cyclopropane' and its application for the synthesis of core structure of drechslerine D.

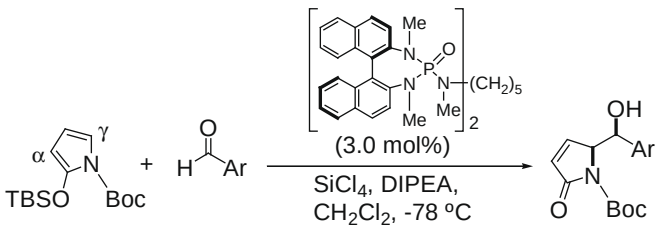


A new prostaglandin H synthase model, having a cavity less hindered and higher flexibility than 'twin-coronet'-type one. The rapid formation of the corresponding [Fe^{IV}(=O)**P**(Np-O·)](**1′**) was observed upon treatment with *m*CPBA.

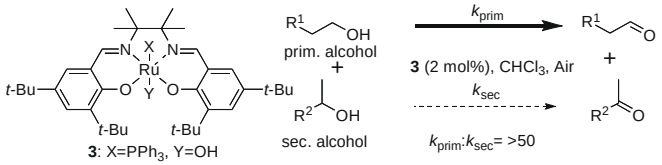


A systematic study of the relationship between the structures and the non-dispersive hole mobilities of a homologous series of amorphous indenothiophene-containing materials is described.

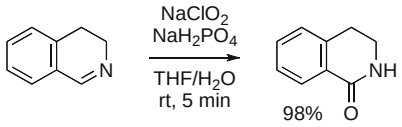


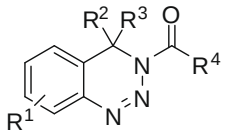


8 examples, isolated yields = 77 - 97%
γ:α > 99:1; dr = 84.0:16.0 - >99.5:0.5; ee = 73.6 - >99%

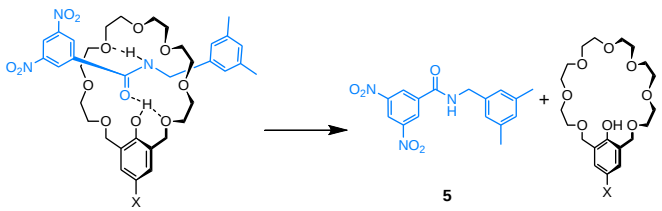


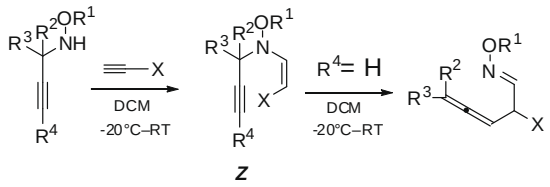
We have found that newly synthesized Ru(PPh$_3$)(OH)-salen **3** is excellent catalyst for chemoselective aerobic oxidation of primary alcohols to the aldehydes even in the presence of activated secondary alcohols under ambient conditions.



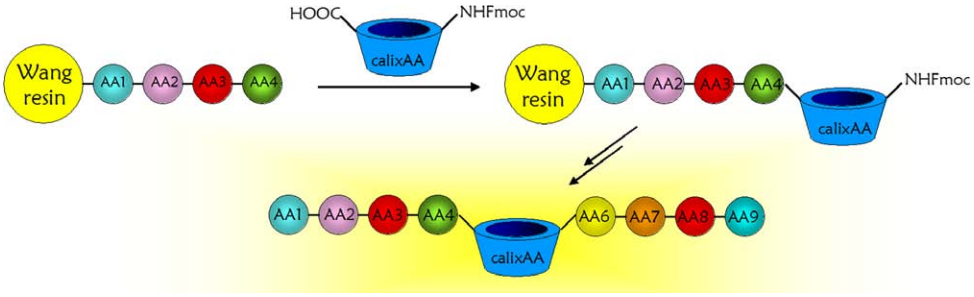


3-Acylbenzo[*d*][1,2,3]triazine

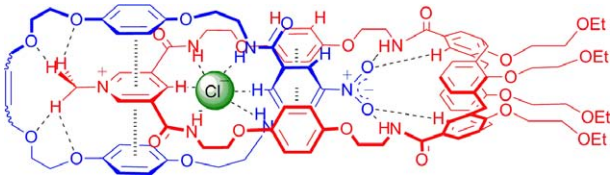


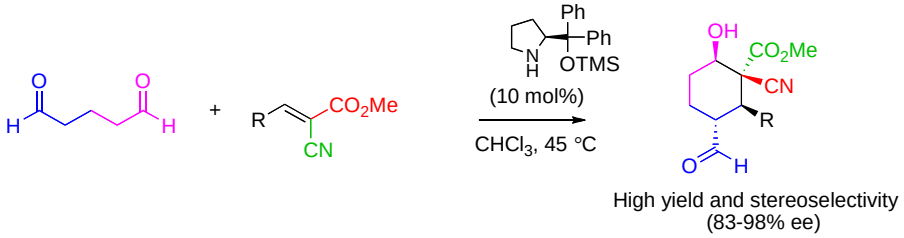


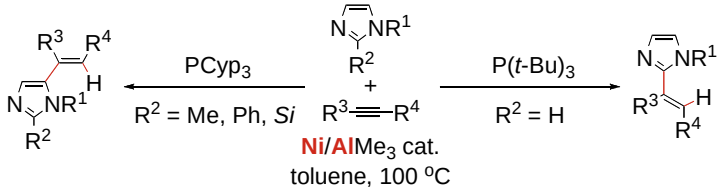
E enamines only react at ⩾70 °C.

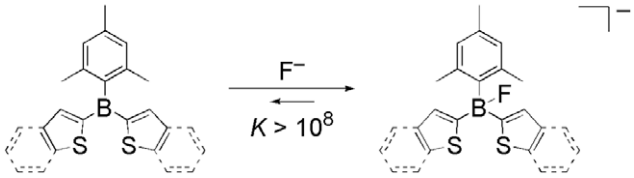


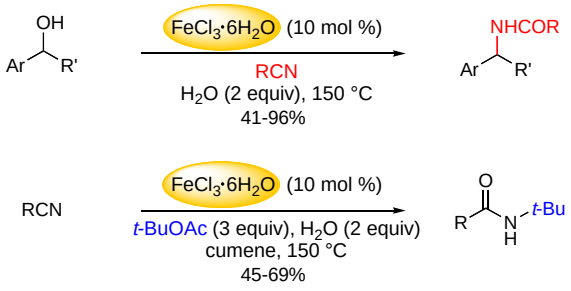
A calixarene amino acid is introduced, for the first time, in a peptide sequence via a stepwise solid-phase synthetic protocol.

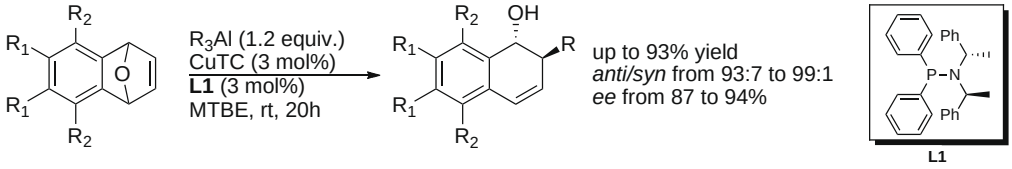


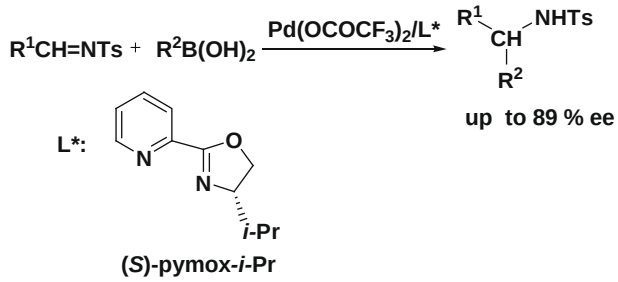


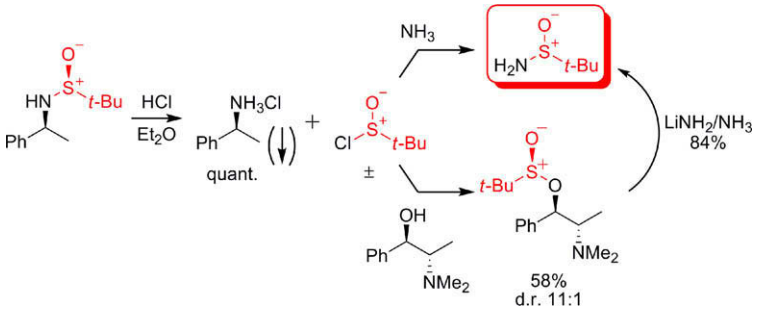




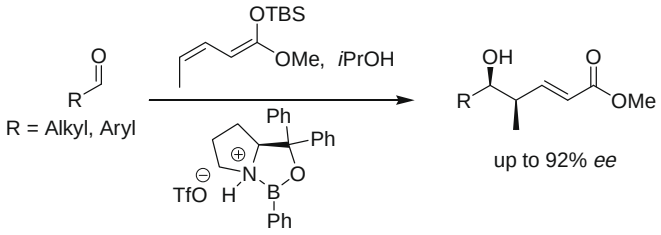


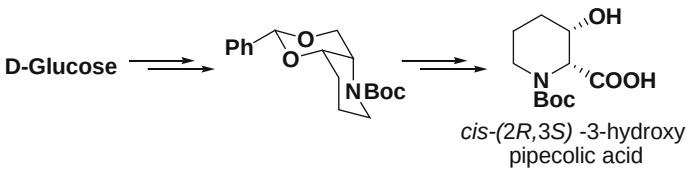


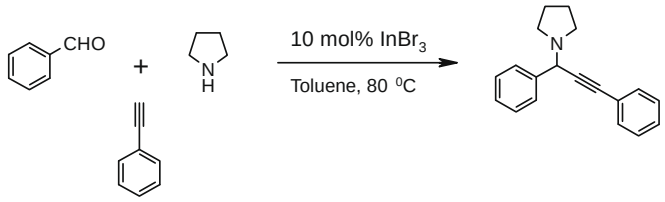


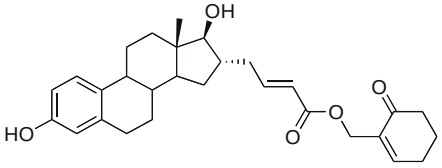


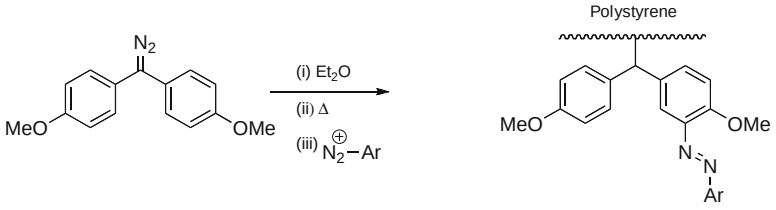
tert-Butylsulfinamide can be recycled in enantiomerically pure form.



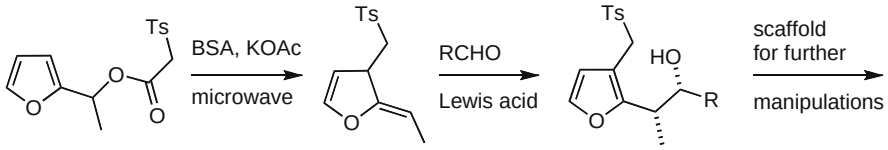


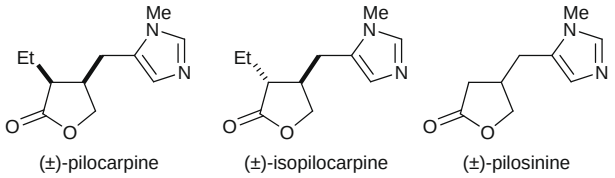




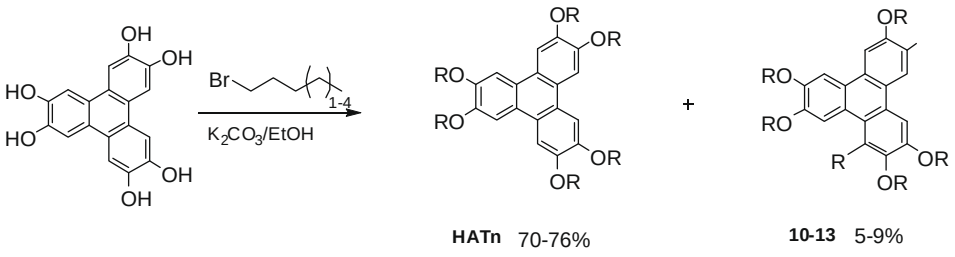


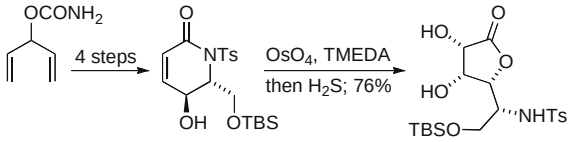
A direct chemical method for the surface modification of materials (polystyrene, silica, silicon) by reaction with diaryl diazomethanes, and spectroscopic evidence indicative of modification, is presented.



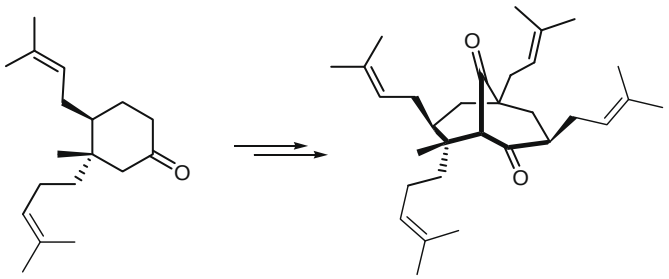


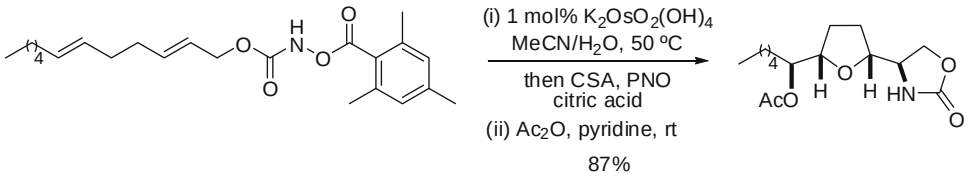
Two efficient routes to facilitate the syntheses of the racemic jaborandi alkaloids pilocarpine, isopilocarpine and pilosinine are described.

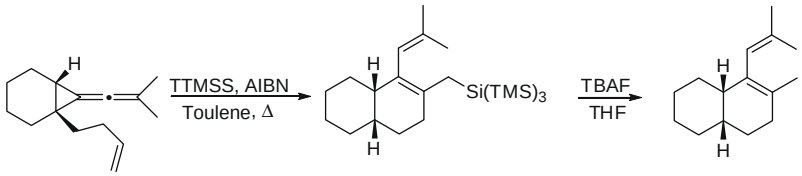




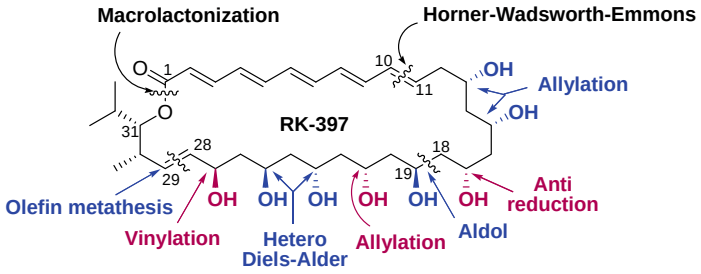
Directed dihydroxylation conditions applied to an *N*-tosyl δ-lactam gave unexpectedly high *anti*-selectivity. In this and related examples it was observed that hydroxylated *N*-tosyl lactams tend to isomerise to γ-lactones.



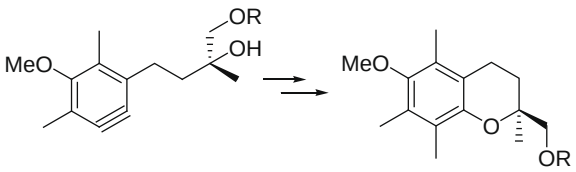




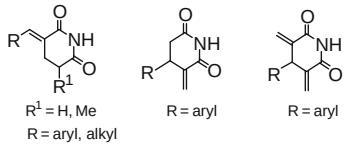
Alkene-substituted allenecyclopropanes undergo radical cyclisation leading to bicyclic 1,3-dienes, on treatment with TTMSS–AIBN.



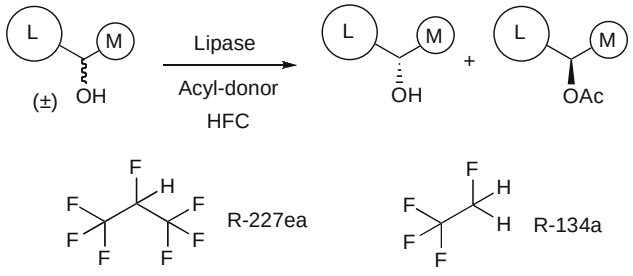
A highly convergent and asymmetric synthesis of the C11–C31 polyol fragment of RK-397 as a single isomer is accomplished via a catalytic enantioselective hetero-Diels–Alder reaction and an intermolecular olefin cross-metathesis as key steps.

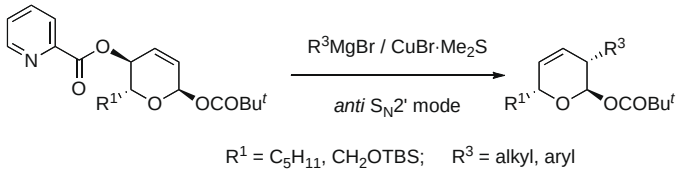


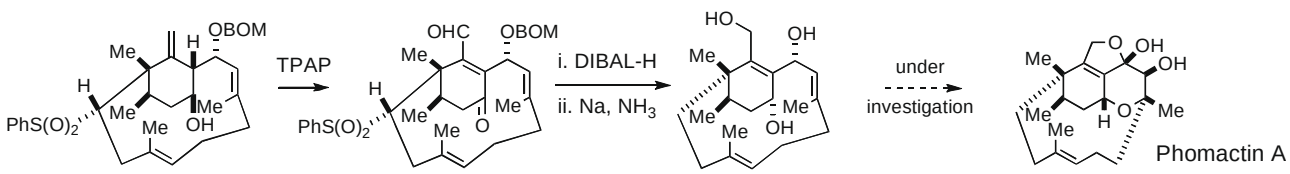
A total synthesis of α-tocopherol has been achieved which features an intramolecular trapping of a highly substituted benzyne, derived from an aminobenzotriazole, with a tertiary alcohol.



3-Hydroxy-2-methylenealkanenitriles, the Baylis–Hillman alcohols, derived from various aldehydes and acrylonitrile, have been conveniently transformed into 3-arylidene(or alkylidene)piperidine-2,6-diones in an operationally simple one-pot multi-step process involving Johnson–Claisen (J–C) rearrangement, partial hydrolysis, and cyclization. Rearranged Baylis–Hillman alcohols, (*E*)-2-hydroxymethyl-3-arylprop-2-enenitriles, have been converted into 4-aryl-3-methylidenepiperidine-2,6-diones in a similar reaction sequence. 4-Aryl-3,5-dimethylidenepiperidine-2,6-dione derivatives have been synthesized from the Baylis–Hillman compounds, 3-aryl-4-cyano-2-methoxycarbonylpenta-1,4-dienes, obtained via the Baylis–Hillman reaction of methyl (2*Z*)-2-(bromomethyl)-3-arylprop-2-enoates with acrylonitrile, in a one-pot process.

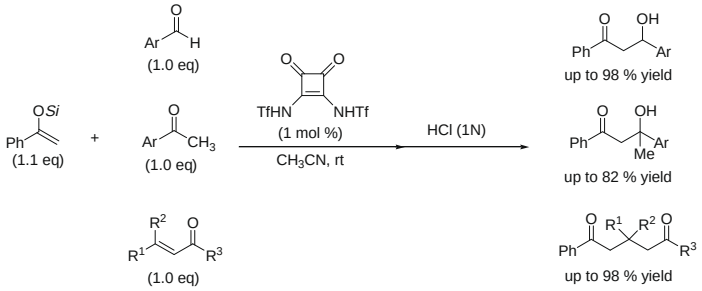


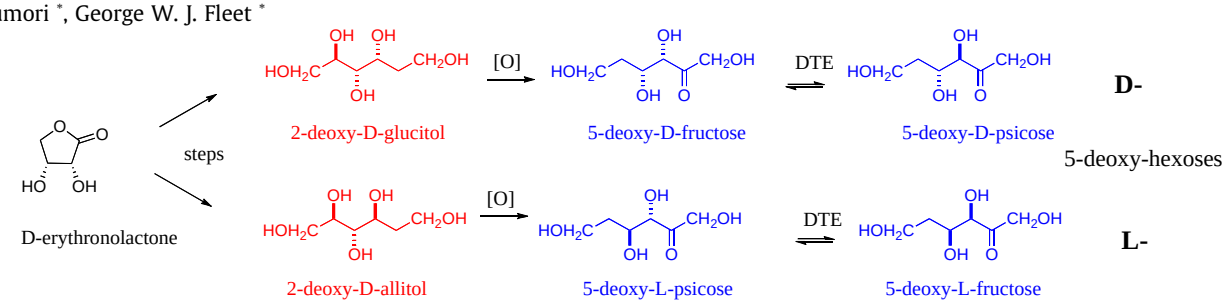


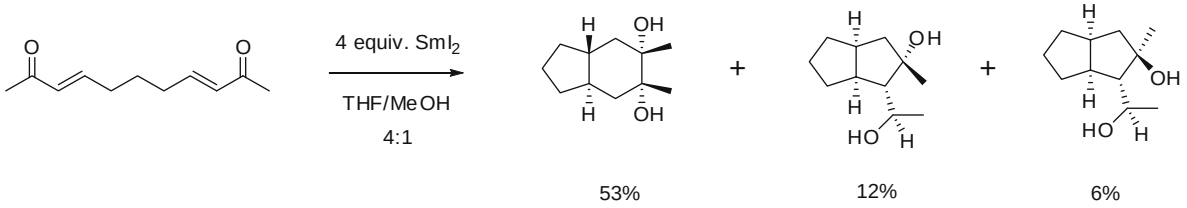


Studies into an approach to the total synthesis of phomactin A are reported in which the oxidation of a homoallylic alcohol into an unsaturated keto-aldehyde using TPAP followed by a stereoselective reduction using DIBAL-H are key steps.

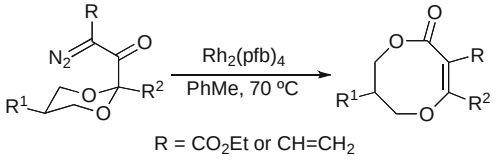
Bis-*N*-trifluoromethanesulfonyl squaramide was prepared as a new bench-stable strong Brønsted acid and applied to the Brønsted acid-catalyzed Mukaiyama aldol and Michael reactions with silyl enol ethers. The resulting Mukaiyama aldol products of aldehydes were obtained in quantitative yields, whereas expansion of the utility of this Brønsted acid to ketones was limited to electron-deficient ketones presumably due to lower reactivity of ketones as well as competing protodesilylation of silyl enol ether. The Brønsted acid was further applied to Mukaiyama Michael reaction of α,β-unsaturated ketones. It is noted that this catalyst loading of all Mukaiyama reaction was only 1 mol % or less, which demonstrated the excellent reactivity of this acid. Mechanistic studies implied that the Mukaiyama aldol reaction might proceed through Brønsted acid catalysis, rather than through Lewis acid catalysis with silylated Brønsted acid.

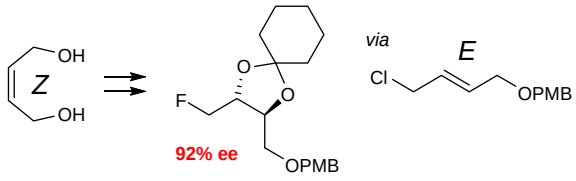


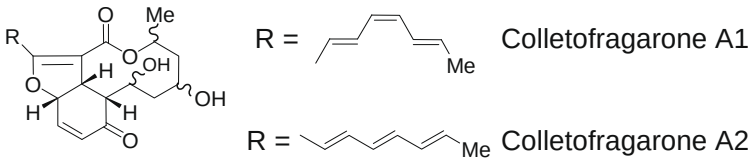


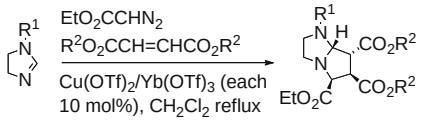


Samarium(II) diiodide-mediated intramolecular cyclodimerisation of simple bis-enones and -enoates in THF/MeOH has been investigated.

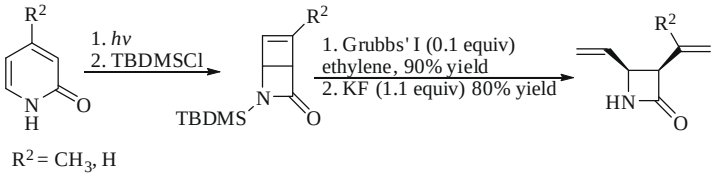


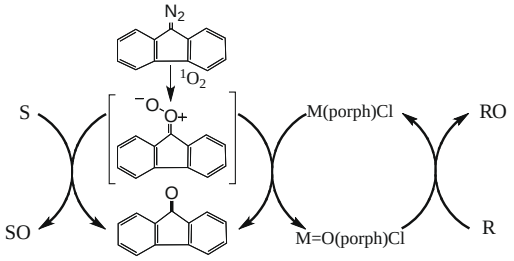


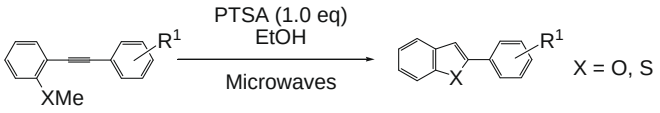


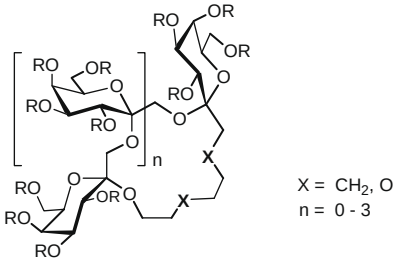


A catalytic method involving carbenoid insertion onto dihydroimidazoles is reported for the generation of dihydroimidazolium ylides, and their subsequent diastereoselective cycloaddition to form pyrrolo[1,2-*a*]imidazoles.

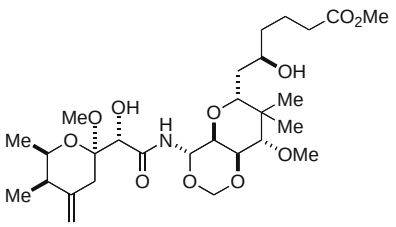


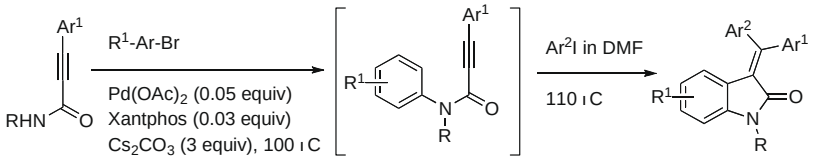


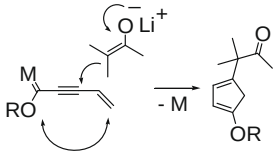




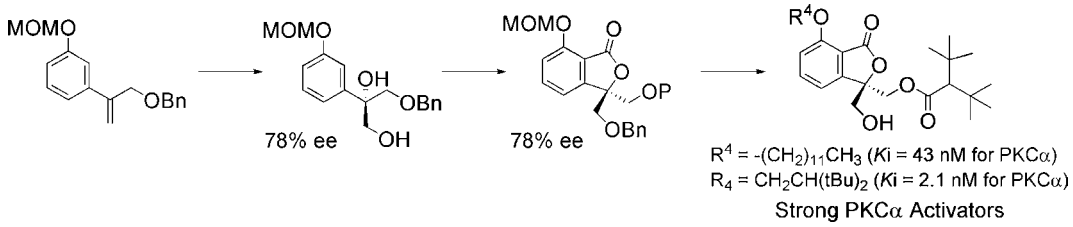
Intramolecular glycosidation and ring-closing metathesis afforded cyclic oligoketosides containing 2 to 5 D-*galacto*-2-heptulopyranose units. Some macrocycles were tested as chiral hosts in a model Michael addition.

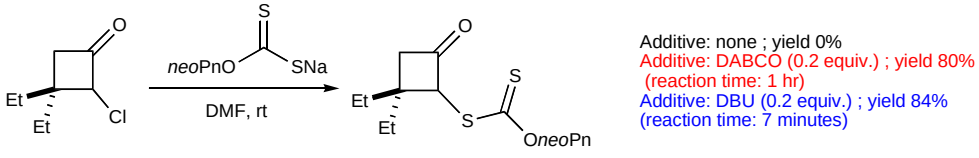


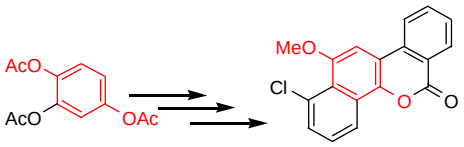




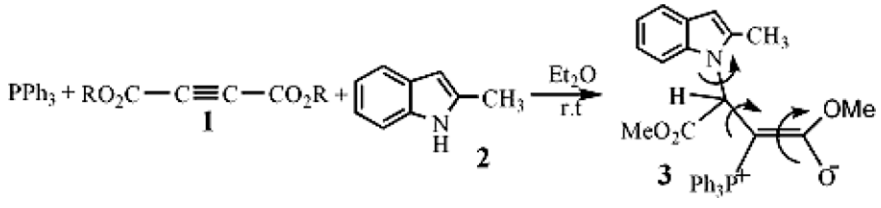
A new pentannulation of Fischer enynyl carbenes promoted by 1,4 conjugated addition of enolates is described.

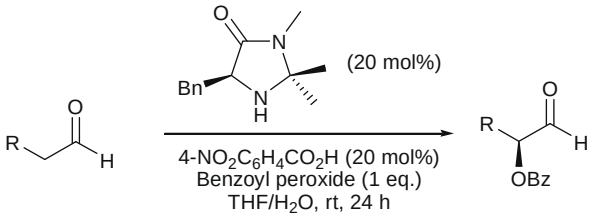


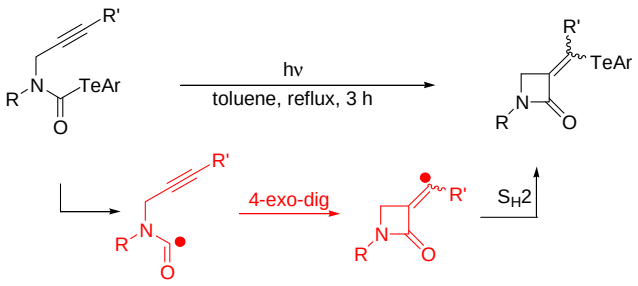


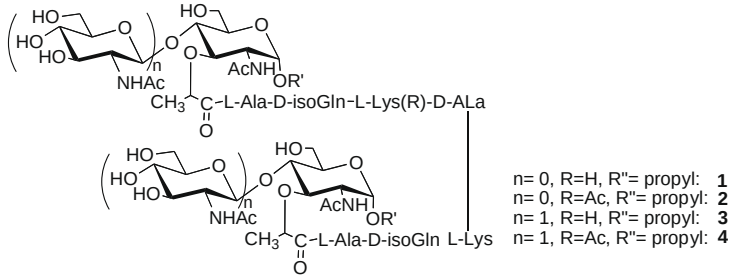


The application of a new benzannulation reaction to the synthesis of the aromatic core of the gilvocarcin family of antibiotics is described.

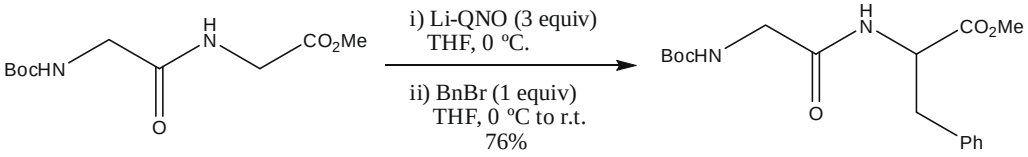


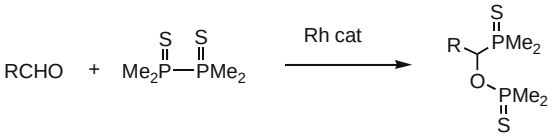


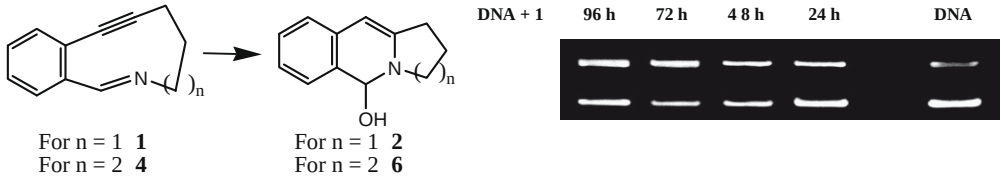


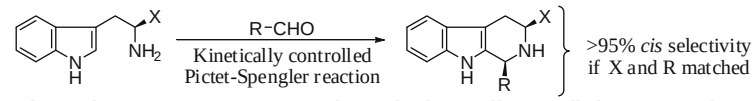


The synthesis of crosslinked peptidoglycan (PGN) fragments from *Streptococcus pneumoniae* cell wall was achieved and the immunostimulatory activities of the compounds were also determined.

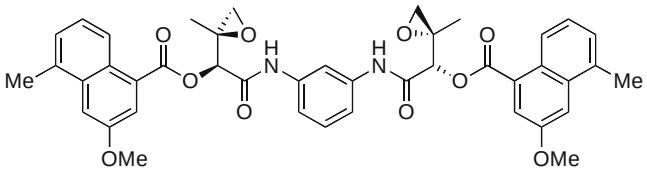


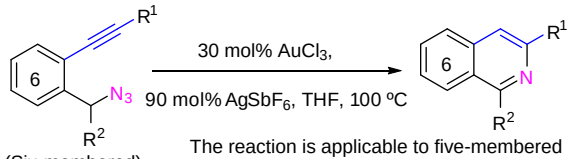


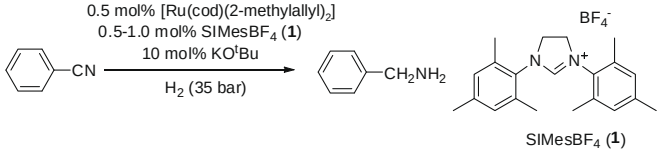


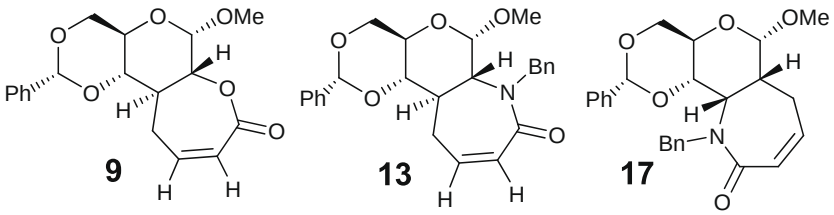


High *cis* selectivity (>95% *cis:trans*) is observed in kinetically controlled Pictet-Spengler reactions if X = CO_2allyl and R = aryl, or X = CH_2CN and R contains a Ph group.

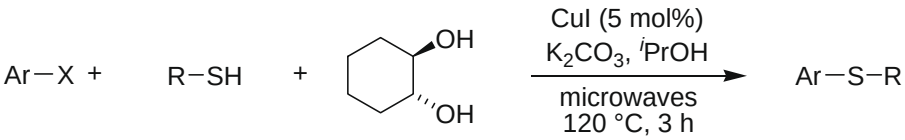




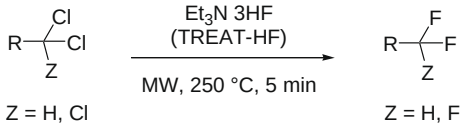


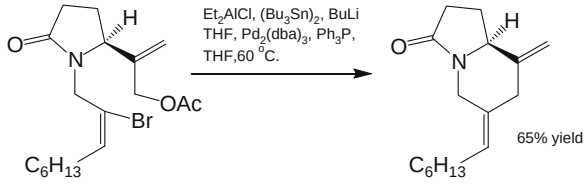


Ring-closing metathesis (RCM) using Grubbs' 2nd generation catalyst was successfully applied to the synthesis of a seven-membered dihydrooxepinone **9** and the dihydroazepinones **13** and **17** on a sugar glycoside scaffold. These compounds are advantageous precursors for the synthesis of polyhydroxylated heteroannulated sugars as potential glycosidase inhibitors.

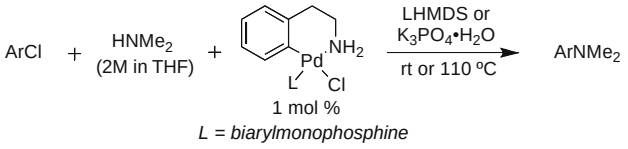


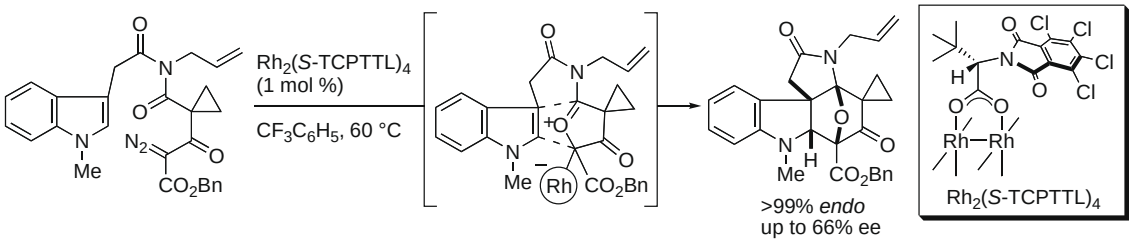
Microwave irradiation of an aryl halide and thiol in 2-propanol in the presence of *trans*-cyclohexane-1,2-diol as ligand, potassium carbonate as base and a copper(I) catalyst gives the corresponding aryl sulfide, often in excellent yield.

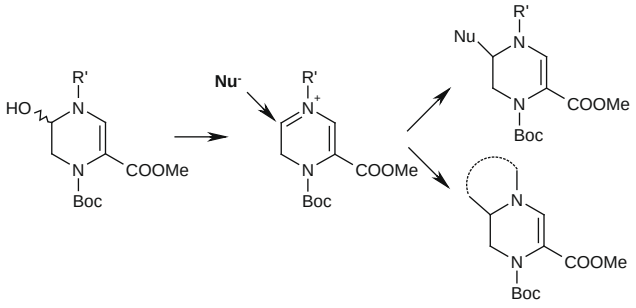


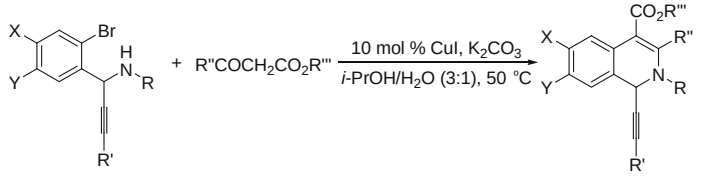


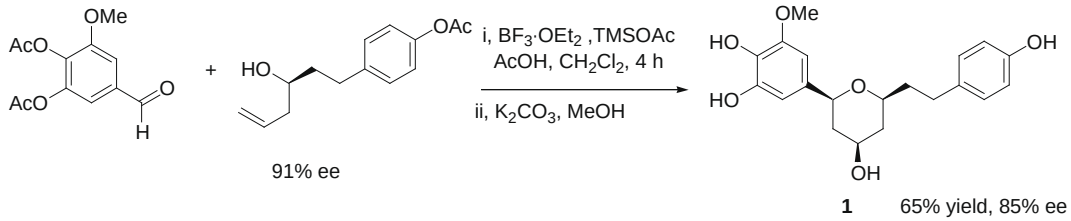
Palladium-catalysed reductive coupling of an *E*-vinyl bromide with an allylic acetate, gave the 8-dehydropumiliotoxin core.



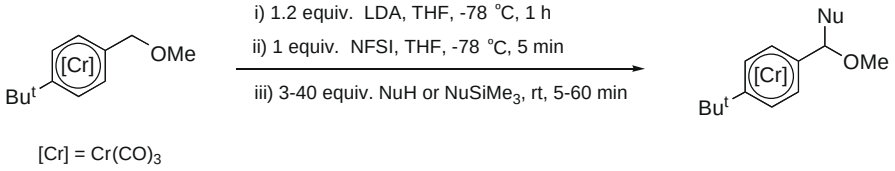




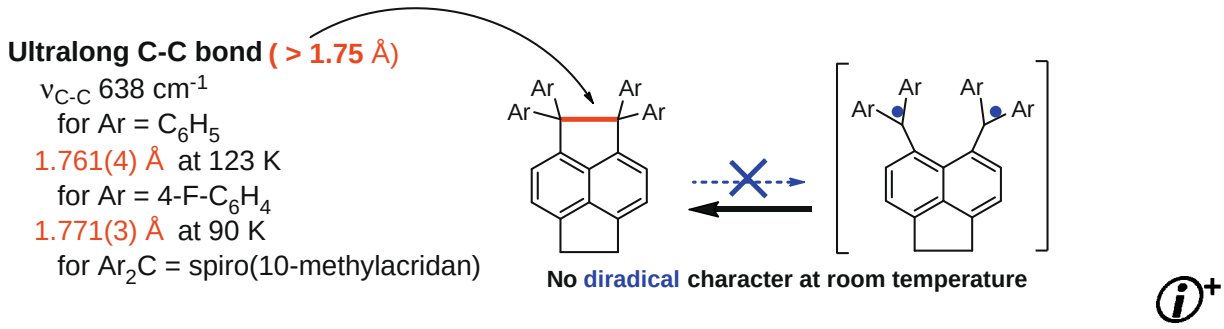


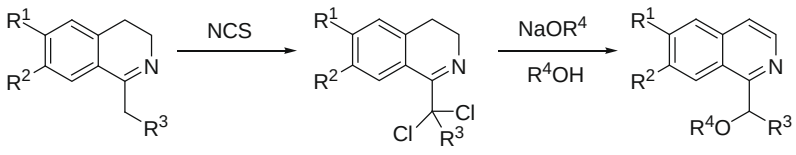


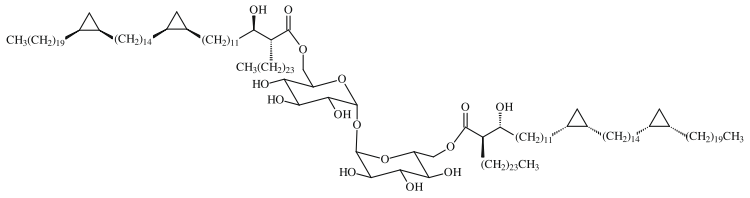
Syntheses of 4-acetoxy-2,6-disubstituted tetrahydropyrans via Prins cyclisation of homoallylic alcohols with benzylic aldehydes are described and the methodology is applied to the total synthesis of diarylheptanoid **1** confirming both the structure and absolute configuration of the natural product.



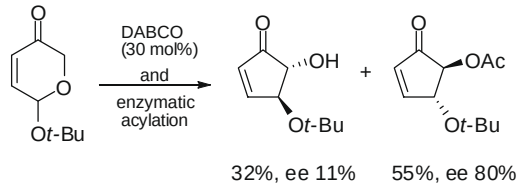
Deprotonation of a chromium tricarbonyl complex of a benzyl ether followed by reaction with *N*-fluorobenzenesulfonimide (NFSI) generated a species that reacts with oxygen, sulfur and carbon nucleophiles.



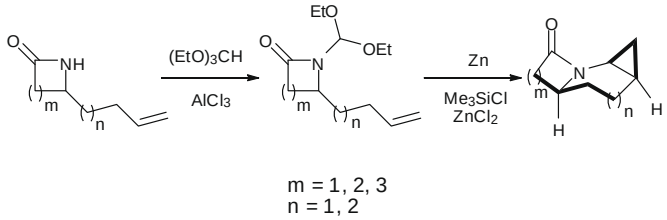


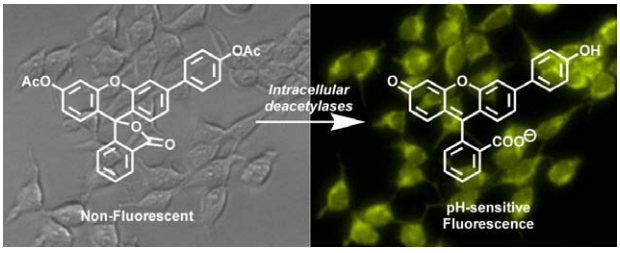


We report the syntheses of trehalose mono- and dimycolates (cord factors) based on unique synthetic mycolic acids matching the chain lengths of components of mycobacterial cells such as the α-mycolic acid trehalose dimycolate shown below.

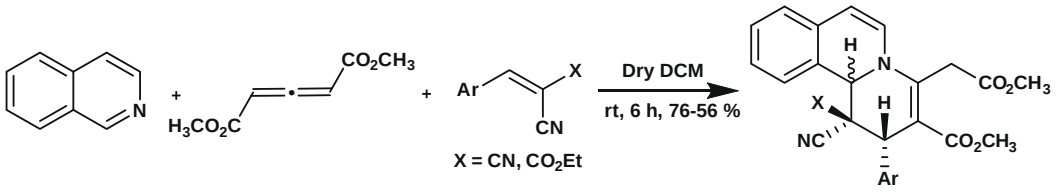


A direct asymmetric synthesis of a *trans*-4,5-dioxygenated cyclopentenone derivative has been achieved by organocatalysed rearrangement of a pyranone in *tert*-butanol by DABCO and in situ enzymatic resolution

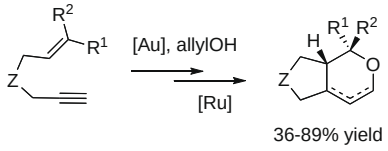




Anthofluorescein, a new multicolor fluorophore with high pH-sensitivity in the physiological range has been synthesized from fluorescein using microwave-assisted cross-coupling chemistry.



A novel MCR involving isoquinoline–allenoate zwitterion is reported.



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