

Supporting Information

Towards safe and sustainable ionic liquids: A critical outlook on industrial and pharmaceutical integration

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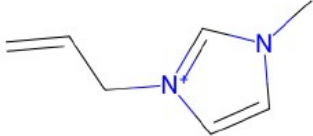
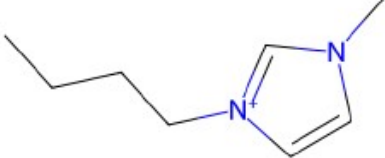
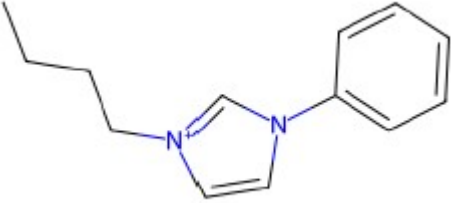
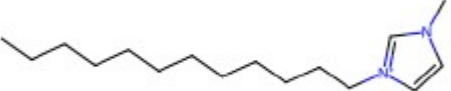
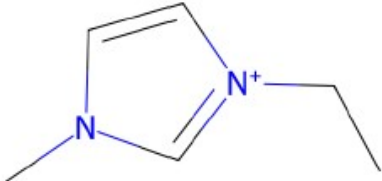
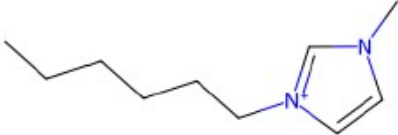
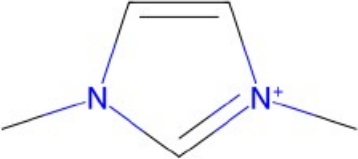
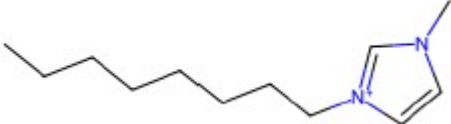
^b **Faculty of chemistry and chemical technology, University of Maribor, Maribor Slovenia**

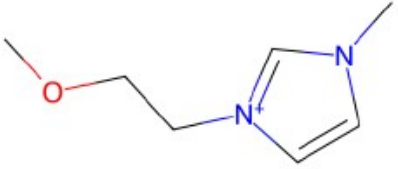
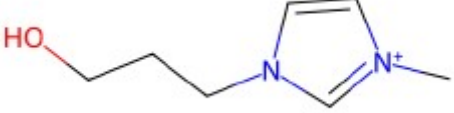
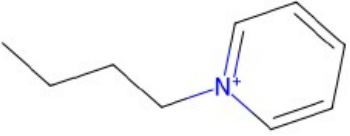
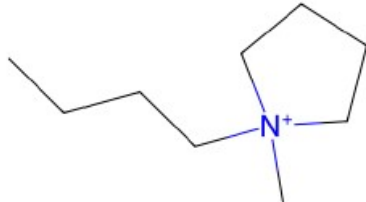
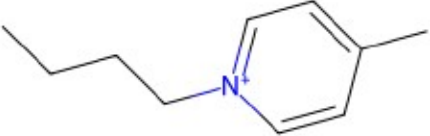
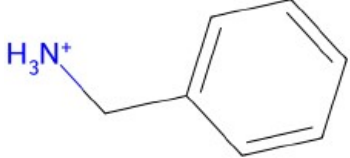
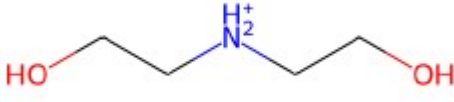
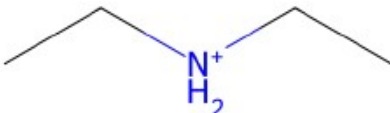
^c **Proionic GmbH, Raaba-Grambach, Austria**

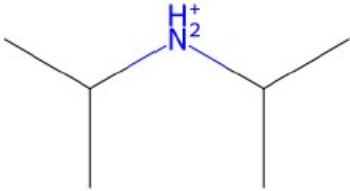
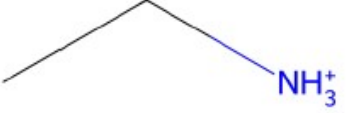

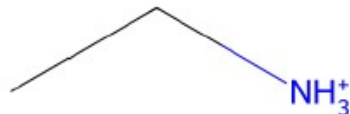

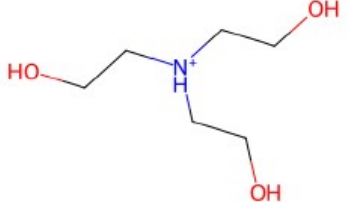
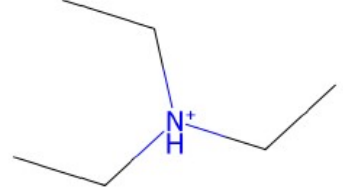
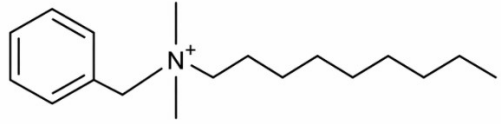
^d **Joint BioEnergy Institute, Lawrence Berkeley National Laboratory, Berkeley, USA**

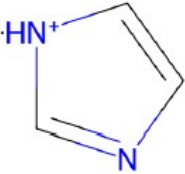
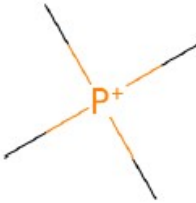

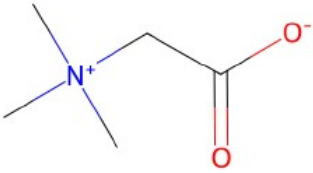
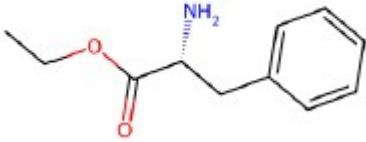
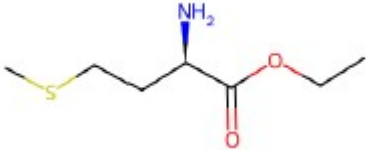
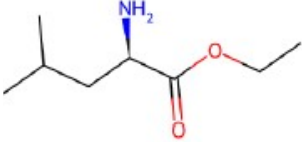
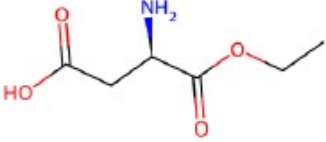
***Corresponding author: filipa.andre.vicente@ki.si**

Table S 1: Structures of cations discussed in the review

<p>1-(2-Methoxyethyl)-3-methylimidazolium</p>	
<p>1-(3-Hydroxypropyl)-3-methylimidazolium</p>	
<p>3-Butyl-1-phenylimidazolium</p>	
<p>1-Dodecyl-3-methylimidazolium</p>	
<p>1-Ethyl-3-methylimidazolium</p>	
<p>1-Hexyl-3-methylimidazolium</p>	
<p>1,3-dimethylimidazolium</p>	
<p>1-Octyl-3-methylimidazolium</p>	

2-Methoxyethyl-3-methylimidazolium	
Hydroxypropylmethylimidazolium	
1-Butylpyridinium	
1-Butyl-1-methylpyrrolidinium	
4-Methyl-N-butylpyridinium	
Benzylammonium	
Diethanolammonium	
Diethylammonium	

Diisopropylammonium	
Ethylammonium	
Monoethanolammonium	
Monoethylammonium	
N,N,N-Trimethylethanolammonium	
Triethanolammonium	
Triethylammonium	
Benzalkonium	

<p>Imidazolium</p>	
<p>Phosponium</p>	
<p>Cholinium</p>	
<p>Glycine betaine</p>	
<p>L-Phenylalanine ethyl ester</p>	
<p>L-Methionine ethyl ester</p>	
<p>L-Leucine ethyl ester</p>	
<p>L-Aspartic acid ethyl ester</p>	

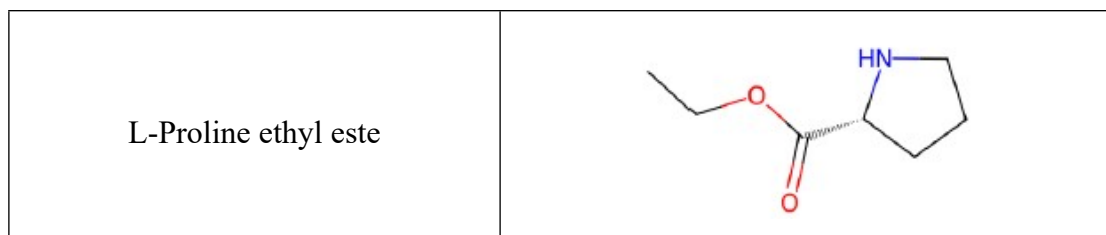
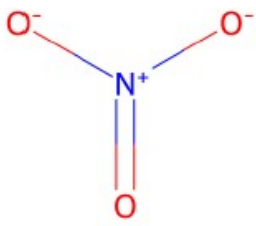
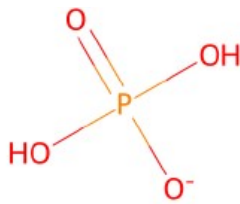
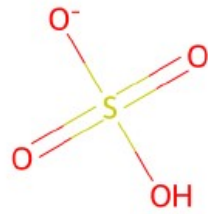
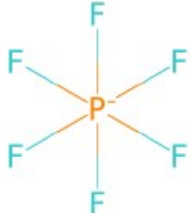
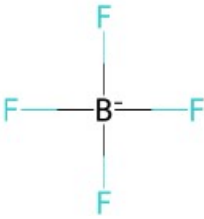
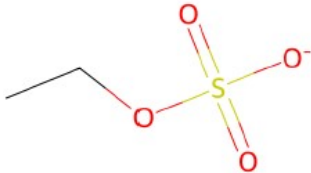
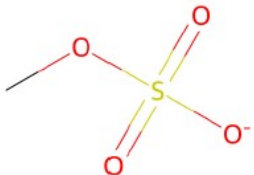
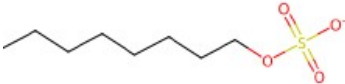
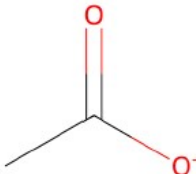
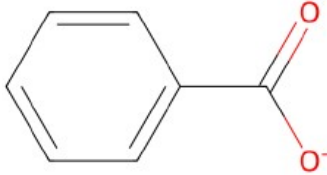
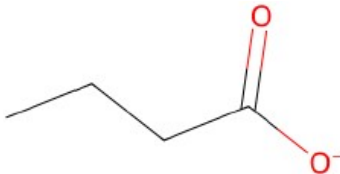
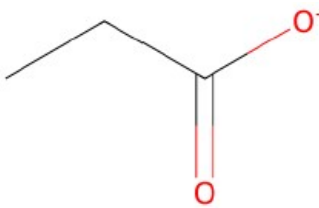
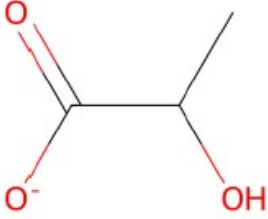
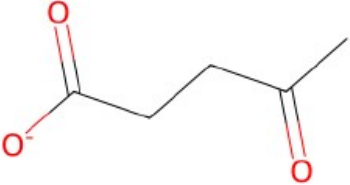
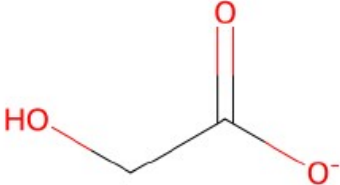
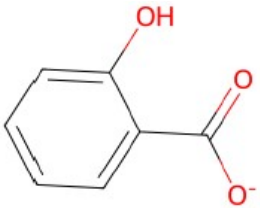
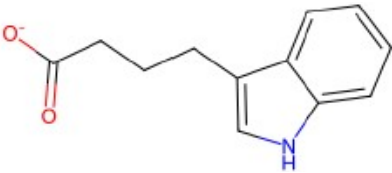
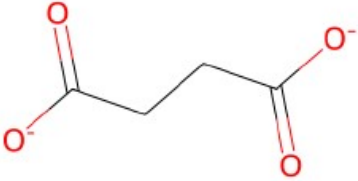
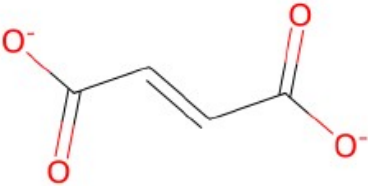
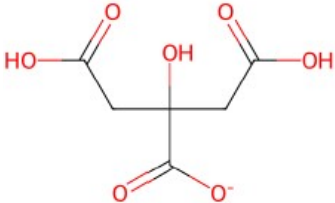
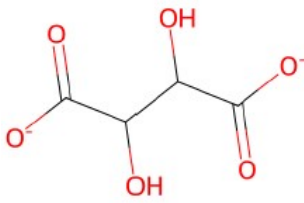
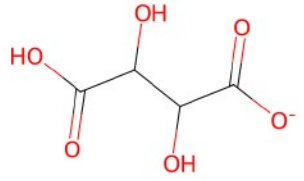
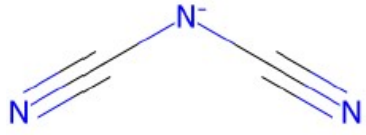
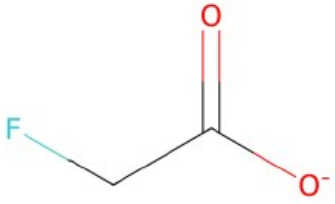
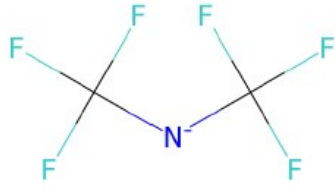



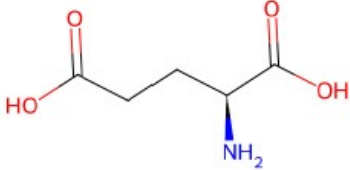
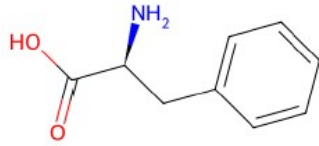
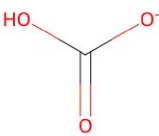
Table S 2: Structures of anions discussed in the review

Chloride	Cl ⁻
Bromide	Br ⁻
Nitrate	
Dihydrogen phosphate	
Hydrogensulfate	
Hexafluorophosphate	

Tetrafluoroborate	
Ethyl sulfate	
Methyl sulfate	
Octyl sulfate	
Acetate	
Benzoate	
Butanoate	
Propanoate	

Lactate	
Levulinate	
Glycolate	
Salicylate	
Indole-3-butyrate	
Succinate	
Fumarate	

Citrate	
Tartrate	
Bitartrate	
Dicyanamide	
Fluoroacetate	
Bis(trifluoromethyl)imide	
Bis(trifluoromethylsulfonyl)imide	

L-Glutamate	 <p>The structure shows a five-carbon chain. The first carbon is part of a carboxyl group (HO-C=O). The second carbon is a methylene group. The third carbon is a methylene group. The fourth carbon is a chiral center with an amino group (NH₂) attached with a wedge bond. The fifth carbon is part of a carboxyl group (C=O-OH).</p>
L-Phenylalanine	 <p>The structure shows a central chiral carbon with a wedge bond to an amino group (NH₂). To the left is a carboxyl group (HO-C=O). To the right is a methylene group, which is further connected to a benzene ring.</p>
Bicarbonate	 <p>The structure shows a central carbon atom double-bonded to an oxygen atom (O) and single-bonded to a hydroxyl group (HO) and an oxygen atom with a negative charge (O⁻).</p>