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ADDITIONS AND CORRECTIONS

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The use of enzymes in organic synthesis and the life sciences: perspectives from the Swiss Industrial Biocatalysis Consortium (SIBC)

Hans-Peter Meyer, Eric Eichhorn, Steven Hanlon, Stephan Lütz, Martin Schürmann, Roland Wohlgemuth and Raffaella Coppolecchia

Catal. Sci. Technol., 2013, **3**, 29–40 (DOI: 10.1039/C2CY20350B). ***Amendment published 11th January 2013***.

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The authors wish to note that this Perspective was written by a group of scientists from international and global companies, active in very different areas and markets. The purpose was to give an inside view and opinions on biocatalysis from an industrial environment in order to foster industry–university communication. Therefore, this industrial contribution is different from a review paper with a comprehensive list of references. However, to provide some more background information for readers, the authors would like to add the following references:

Page 29, left column after the sentence beginning "However, despite these and other applications of enzymatic reactions also run at industrial scale…"

the reference, M. C. R. Franssen, M. Kircher, R. Wohlgemuth, Industrial Biotechnology in the Chemical and Pharmaceutical Industries, in *Industrial Biotechnology, Sustainable Growth and Economic Success*, ed. W. Soetaert and E. J. Vandamme, Wiley-VCH, Weinheim, 2010, should be added.

Page 34, left column after the sentence "They do not require cofactors, are easily available at large scale and a broad range of hydrolases has been well characterized with predictable results."

the reference, R. J. Kazlauskas and U. T. Bornscheuer, *Hydrolases in organic synthesis*, Wiley-VCH, Weinheim, 2006, should be added.

Page 34, right column after the sentence "Although the development of both enantiotope-selective hydrolyses of prochiral acylated diols and dicarboxylic esters in aqueous buffers as well as enantiotope-selective acylation of prochiral diols has been developed decades ago, short synthetic routes to valuable chiral compounds from easily accessible starting materials are still of industrial interest."

the references,

R. Wohlgemuth, Large-scale applications of hydrolases in biocatalytic asymmetric synthesis, in, *Large-scale asymmetric catalysis*, ed. H. U. Blaser and H. J. Federsel, Wiley-VCH, Weinheim, 2010

and

E. Egholm Jacobsen, A. Lie, M. M. Hansen Frigstad, M. Farrag El-Behairy, T. Ljones, R. Wohlgemuth, T. Anthonsen, *J. Mol. Catal. B: Enzymatic* 2013, **134**, 85-86, should be included.

Page 35, left column after the sentence beginning "Esterases have proven to be useful biocatalysts in the desymmetrization of a variety of prochiral glutaric esters, *e.g.* in the desymmetrization of dimethyl 3-hydroxy-3-methylglutarate…", the references:

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R. Wohlgemuth, Large-scale applications of hydrolases in biocatalytic asymmetric synthesis, in, *Large-scale asymmetric catalysis*, ed. H. U. Blaser and H. J. Federsel, Wiley-VCH, Weinheim, 2010 and

R. Wohlgemuth, Green Production of Fine Chemicals by Isolated Enzymes, in, *Biocatalysis for Green Chemistry and Chemical Process Development*, ed. J. A. Tao and R. Kazlauskas, John Wiley & Sons Ltd, 2011, should be included.

Page 35, left column after the sentence " ..or by epoxide hydrolase-catalyzed ring-opening reactions of the corresponding epoxides."

the reference: M. Kotik, A. Archelas and R. Wohlgemuth, *Curr. Org. Chem.*, 2012, **16**, 451, should be included.

Page 35 The reference, R. Wohlgemuth, Large-Scale Applications of Biocatalysis in the Asymmetric Synthesis of Laboratory Chemicals, in, *Asymmetric Catalysis on Industrial Scale*, ed. H. U. Blaser and E. Schmidt, Wiley-VCH, Weinheim, 2004, should be added alongside Figure 5.

Page 37, left column The activity for acetone reported by Wong and co-workers should read 0.7%

Page 37, right column after the sentence, "On the other hand the FSA variants containing the Ala129Ser exchange had higher activities with dihydroxyacetone and AASM compared to hydroxyacetone (data not shown)."

the reference, M. Schürmann, P. Alsters and T. Netscher, DSM, 2006, unpublished work, should be included.

Page 37, right column after the sentence "The specific activity and volumetric productivity for this reaction was lower than with HA, but still in a high range compared to the physiological substrates (Table 5)",

the reference: M. Schürmann and G. A. Sprenger, *J. Biol. Chem.*, 2001, **276**, 11055, should be included (reference 30).

Page 37, right column after the sentence, "Most of the subsequent steps towards (+)-biotin were proven to be feasible and efficient as well (to be published elsewhere or reported before)."

the reference: M. Schürmann, P. Alsters and T. Netscher, DSM, 2006, unpublished work, should be added.

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The effect of ring size on the selective oxidation of cycloalkenes using supported metal catalysts

Hamed Alshammari, Peter J. Miedziak, David W. Knight, David J. Willock and Graham J. Hutchings

Catal. Sci. Technol., 2013, **3** (DOI: 10.1039/C3CY20864H). ***Amendment published 18th March 2013.***

Table 3 contained errors in two entries, the errors concerned the conversion and selectivity during the oxidation of cyclohexene using 1% Au/Graphite and selectivity for the oxidation of cyclooctene. The corrected table is below:

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	Temperature (°C)	Catalyst	Conversion(%)	Selectivity		
				Epoxide	Cy-one	Cy-ol
Cyclopentene[a]	26	Graphite	0.2	5.3	42.9	41.6
		1%Au/Graphite	4.4	12.4	43.6	23.9
		TiO_2	1.3	12	44	26
		1%Au/TiO_2	5.7	11.3	40.2	25.2
		SiO_2	0.2	20	25	49
		1%Au/SiO_2	5.2	9	44.8	11.5
		CeO_2	0.2	10	32	47
		1%Au/CeO_2	7	12.8	37.2	21.9
Cyclohexene[b]	50	Graphite	Trace	0	69.8	30.2
		1%Au/Graphite	8.2	6.4	50.5	41.4
		TiO_2	Trace	0	68.0	31.0
		1%Au/TiO_2	6.7	9.9	25.6	61.2
		SiO_2	0	0	0	0
		1%Au/SiO_2	7.9	6.2	51.1	41.8
		CeO_2	0.4	3.4	89	4.3
		1%Au/CeO_2	6.2	7.8	42.0	49.0
Cycloheptene[c]	60	Graphite	4.9	17.6	29.5	52.9
		1%Au/Graphite	10.1	18.2	43.5	38.4
		TiO_2	3.0	21.0	25.0	53.0
		1%Au/TiO_2	10.7	19.1	42.7	38.2
		SiO_2	2.5	21	44	34
		1%Au/SiO_2	14.1	18	40.5	41.5
		CeO_2	2	23	40	36
		1%Au/CeO_2	9.6	20.7	35.9	43.4
Cyclooctene[d]	80	Graphite	0.4	79.5	4.5	15.8
		1%Au/Graphite	6.8	85.9	4.8	9.3
		TiO_2	0.2	33	33	36
		1%Au/TiO_2	6.6	81.4	5	7.6
		SiO_2	0.1	50	20	30
		1%Au/SiO_2	4.6	87.4	5	7.7
		CeO_2	1.9	81	4.8	10
		1%Au/CeO_2	4.6	74.1	1.3	8.1
Cyclododecene[e]	120	Graphite	8	88	10	-
		1%Au/Graphite	10.2	60.5	37	-
		TiO_2	7.3	91	8.2	-
		1%Au/TiO_2	9.4	65.9	33	-
		SiO_2	7.4	93	6.9	-
		1%Au/SiO_2	8.6	60.9	35	-
		CeO_2	8.8	89	10	-
		1%Au/CeO_2	11.8	76.7	23	-

Reaction conditions: 10 ml of substrate, 0.12 g of catalyst, TBHP (0.064×10^{-3} mol), glass reactor, 24 h, atmospheric pressure. When gold is present, substrate: Metal (mol:mol) = [a]18017, [b]16289, [c]14135, [d]12664, [e]8560. Substarte:TBHP (mol:mol) = [a]1707, [b]1543, [c]1339, [d]1220, [e]811.

Facile and homogeneous decoration of RuO_2 nanorods on graphene nanoplatelets for transfer hydrogenation of carbonyl compounds

Mayakrishnan Gopiraman, Sundaram Ganesh Babu, Zeeshan Khatri, Kai Wei, Morinobu Endo, Ramasamy Karvembu and Ick Soo Kim

Catal. Sci. Technol., 2013, **3** (DOI: 10.1039/c3cy20735h). ***Amendment published 25th April 2013.***

Table 1 contains the wrong products for entries 10-16 and 18. The corrected products are shown below:

Table 1, entry 10
Product (1b)

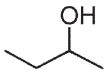


Table 1, entry 11
Product (1b)

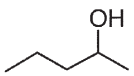


Table 1, entry 12
Product (1b)

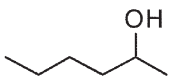


Table 1, entry 13
Product (1b)

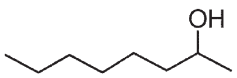


Table 1, entry 14
Product (1b)

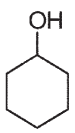


Table 1, entry 15
Product (1b)

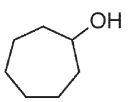


Table 1, entry 16
Product (1b)

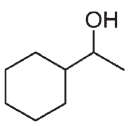
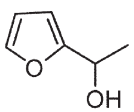


Table 1, entry 18
Product (1b)



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Organosilver(I/II) catalyzed C–N coupling reactions – phenazines

Bojidarka Ivanova and Michael Spiteller

Catal. Sci. Technol., 2013, **3**, 1129–1135 (DOI: 10.1039/C3CY20798F). ***Amendment published 14th August 2013***.

Professor Michael Spiteller wishes to resign as a co-author from the article. He declares that the article was submitted and published without his agreement as a second author and states that the work was published in contravention of the "Rules of Good Scientific Practice" of the Institute of Environmental Research (INFU) of the Faculty of Chemistry, TU Dortmund. He also disputes the mass spectrometry interpretations detailed in the manuscript.

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The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.
Additions and corrections can be viewed online by accessing the original article to which they apply.

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RETRACTION

Towards near zero-sulfur liquid fuels: a perspective review

Barbara Pawelec, Rufino M. Navarro, José Miguel Campos-Martin and José L. G. Fierro

Catal. Sci. Technol., 2011, **1**, 23–42 (DOI: 10.1039/c0cy00049c). ***Retraction published October 2012.***

We, the named authors, hereby wholly retract this Catalysis Science & Technology article, due to significant similarity with previously published work.

Signed: B. Pawelec, R. M. Navarro, J. M. Campos-Martin and J. L. G. Fierro, October 2012

Retraction endorsed by Jamie Humphrey, Editor, *Catalysis Science & Technology*

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