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EDUCATION

Ph.D., Organic Chemistry, Moscow State University, Moscow, Russia **1993**
M.S., Chemistry (with honors), Moscow State University, GPA 4.9/5.0 **1990**

POSITIONS

2007-present Professor, Cleveland Clinic Lerner College of Medicine,
Staff, Department of Gastroenterology and Hepatology, Cleveland Clinic, Cleveland, OH.

2000-2007 Assistant Professor, Department of Nutrition, Case Western Reserve University
(CWRU), Cleveland, OH.

1998-2001 Instructor, Department of Nutrition, CWRU.

1997-1998 Senior Research Associate, Department of Nutrition, CWRU.

1995-1997 Research Fellow - Department of Chemistry, Moscow State University.

1993-1995 Research Associate - Institute of Physiologically Active Compounds at the
Russian Academy of Science, Chernogolovka, Russia.

TEACHING

2007-present Cleveland Clinic Lerner College of Medicine, Cleveland, OH
Course: Lipid and Lipoprotein Metabolism.

2007-2008 Cleveland State University, Chemistry Department, Cleveland, OH
Course: Organic Chemistry I&II.

2005-2007 Department of Nutrition, Medical School, CWRU, Cleveland, OH
Course: Selected chapters of Stable Isotopes in Metabolic Studies.

ADVISING

Postdoctoral Fellow Mentor:

- Ling Li, Lerner Research Institute, Cleveland Clinic Foundation 2009-present

PhD Student Mentor:

- Namig Pirgulyev, a chemistry graduate student, Moscow State University 1994-1997

Undergraduate Research Mentor:

- Supervised 21 undergraduate students as a part of the Summer Research Program, Case Western Reserve University 1997-2007
- Mentored 3 undergraduate students as a part of Full Semester Research Programs
 - Dafna Drorr, Nutrition Research Program 1999
 - Julian Adams, Chemistry Research Program 2001
 - Andrea Cendrowski, Biochemistry Research Program 2006

CURRENT GRANTS

- **R01GM112044 NIH/NIGM (Multi-PI)** 04/01/2015-03/30/2019
“Data Driven Dynamic Proteomics of Nonalcoholic Fatty Liver Disease”
- **American Diabetes Association (PI)**
National Innovation Grant 01/01/2015-12/30/2016
“HDL proteome dynamics and HDL dysfunction in patients with type 2 diabetes”
- **American Heart Association (PI)** 01/01/2012-12/30/2015
National Innovation Grant
“Lipoproteome dynamics as a novel approach for the assessment of reverse cholesterol transport *in vivo*”.
- **R21HL114407 NIH/NIHLB (PI)** 08/01/2012-07/30/2015
“Mitochondrial Proteome Dynamics in Heart Failure assessed with Heavy Water”

COMPLETED GRANTS

- **Nutrition Obesity Research Center Grant (PI)** 12/01/2011-11/30/2013
“Ceramide as mediator of obesity induced atherosclerosis”.
- **1R 21 RR025346 NIH Road map grant (PI)** 01/01/2009-12/30/2012
“Enabling of protein dynamics”
- **RO1 DK089547 NIH (PI: Kirwan)** 07/01/2010-06/30/2013
Role: Co-investigator
“Effect of Bariatric Surgery on Mechanisms of Type 2 Diabetes”.
- **NIH R01 (PI: Brunengraber)** 01/09/2004-04/30/2007
Role: Co-investigator
“Dynamic Metabolomics via Isotopomer Analysis”.
- **American Heart Association (PI)** 01/01/2004-12/30/2006
“A new two-prong approach for the treatment of reperfusion injury”.

GRANT REVIEW

American Diabetes Association (ADA)	2015
American Heart Association (AHA)	2013-2014
Clinical and Translational Science Collaborative (CTSC), CWRU	2011-2015
U.S. Civilian Research and Development Foundation (CRDF)	2003-2004.

EDITORIAL BOARD

Discoveries Journal	2014-
Journal of Chromatography & Separation Techniques	2012-

MANUSCRIPT REVIEW

PLOS ONE	2015-
Cardio-Vascular Diabetology	2013-
Obesity,	2013-
American Journal of Physiology Heart Circ Physiol.	2012-2013
Gastroenterology	2011-2012
Nature Protocols	2010
Journal of Biological Chemistry	2006-2013

Journal of Chromatography & Separation Techniques	2010-
Journal of Labeled Compounds and Radiopharmaceuticals	2006-2007
Russian Journal of Organic Chemistry	1994-1997

SHORT PLATFORM PRESENTATION

2014	American Heart Association: ATVB meeting, Kinmet session, Toronto, Canada
2011	American Diabetes Association: Exercise and Insulin Resistance, San Diego, CA
2008	Experimental Biology: Liver Pathobiology, San Diego, CA

INVITED SPEAKER

2015	University of South Florida, Tampa, FL
2014	Henri Ford Hospital, Detroit, MI
2013	Metabolomics Symposium on Obesity, Diabetes and Cardiovascular Disease at Harvard Medical School, Boston, MA
2012	Obesity Summit, Cleveland Clinic, Cleveland, OH
2011	Department of Medicine, University of Maryland, School of Medicine, Baltimore
2010	Department of Urology, School of Medicine, Case Western Reserve University
2009	Department of Pediatrics, School of Medicine, Case Western Reserve University
2008	Cleveland State University, Cleveland, OH
2006	North Illinois University, Decalb, IL Saint Jude Children Research Hospital, Memphis, TE

PROFESSIONAL MEMBERSHIPS

2014-	American Diabetes Association
2012-	American Heart Association
2011-2013	American Society of Molecular Biology and Biochemistry
2009-	American Society of Mass Spectrometry
2009-2011	American Society of Nutrition
1998-2006	American Chemical Society
1997-2000	New York Academy of Science

PEER-REEVIED PUBLICATIONS (*corresponding author).

PART I: Biological papers

1. ***Kasumov T**, Li L, Li M, Gulshan K, Kirwan J, Liu X, Previs S, Willard B, Smith J, McCullough A, Ceramide as a Mediator of Non-alcoholic Fatty Liver Disease Associated Atherosclerosis. *PLOSE ONE*, 2015, in press.
2. **Kasumov T**, Solomon T, Huang H, Zhang R, Kirwan JP. Improved Insulin Sensitivity After Exercise Training is Linked to Reduced Plasma C14:0 Ceramide in Obesity. *Obesity*, 2015, in press.
3. Zhou H, Wang SP, Herath, K, **Kasumov T**, Sadygov R, Previs SF, Kelley DE. Tracer Based Estimates of Protein Flux in Cases of Incomplete Product Renewal: Implications of Collagen Heterogeneity. *Am J Physiol Endocrinol Metab.*, 2015, in press.
4. Berisha SZ, Brubaker G, **Kasumov T**, Hung KT, DiBello PM, Huang Y, Li L, Willard B,

- Pollard KA, Nagy LE, Hazen SL, Smith JD. HDL from apoA1 transgenic mice expressing the 4WF isoform is resistant to oxidative loss of function, 2015, 56(3), 653-64
5. Shekar KC, Li L, Dabkowski ER, Xu W, Ribeiro Jr RF, Hecker PA, Recchia FA, Sadygov RG, Willard B, ***Kasumov T**, Stanley WC. Cardiac mitochondrial proteome dynamics with heavy water reveals stable rate of mitochondrial protein synthesis in heart failure despite decline in mitochondrial oxidative capacity. *Journal of Molecular Cellular Cardiology*, 2014, 75, 88-97.
 6. ***Kasumov T**, Willard B, Li L, Li M, Conger H, Buffa J A, Previs S, McCullough A, Hazen SL, Smith JD, ²H₂O-based HDL turnover method for the assessment of dynamic HDL function in Mice. *Arterioscl Thromb Vasc Biol*, 2013, 33(8), 1994-2003.
 7. ***Kasumov T**, Dabkowski ER, Shekar KC, Li L, Ribeiro RF Jr, Walsh K, Previs SF, Sadygov RG, Willard B, Stanley WC, Assessment of cardiac proteome dynamics with heavy water: slower protein synthesis rates in interfibrillar than subsarcolemmal mitochondria. *Am J Physiol Heart Circ Physiol*. 2013; 304(9): H1201-1214. PMID: PMC3652088.
 8. Heneghan HM, Huang H, Kashyap SR, Gornik HL, McCullough AJ, Schauer P R, Brethauer SA, Kirwan JP, **Kasumov T**, Reduced cardiovascular risk after bariatric surgery is related to ceramide-mediated reduction in apolipoprotein-B100 and the ApoB100/A1 ratio. *Surgery for Obesity and Related Diseases*, 2013; 9(1):100-107. PMID: PMC3337956
 9. Glass C, Hipskind P, Tsien C, Malin SK, **Kasumov T**, Shah SN, Kirwan JP, Dasarathy S, Sarcopenia and a physiologically low respiratory quotient in patients with cirrhosis: a progressive controlled study. *J Appl Physiol*. 2013, 114(5), 559-65. PMID: PMC3615594.
 10. Le L, Willard B, Sadygov R, Kirwan J, Stanley WC, McCullough AJ, Previs S, ***Kasumov T**, Plasma Proteome Dynamics: Analysis of Lipoproteins and Acute Phase Response Proteins with ²H₂O-metabolic labeling. *Mol Cell Proteomics*, 2012; 11 (7):1-16. PMID: PMC3394944.
 11. Pagadala M, **Kasumov T**, McCullough AJ, Zein NN, Kirwan JP. Role of ceramides in non-alcoholic fatty liver disease. *Trends in Endocrinology and Metabolism*, 2012; 23 (8): 365-371. PMID: PMC3408814.
 12. **Kasumov T**, Edmison JM, Dasarathy S, Bennett C, Lopez R, Kalhan SC. Plasma levels of asymmetric dimethylarginine in patients with biopsy-proven nonalcoholic fatty liver disease. *Metabolism*, 2011; 60(6): 776-781. PMID: PMC3012158
 13. Huang H, **Kasumov T**, Gatmaitan P, Heneghan HM, Kashyap SR, Schauer PR, Brethauer SA, Kirwan JP, Gastric Bypass Surgery Reduces Plasma Ceramide Subspecies and Improves Insulin Sensitivity in Severely Obese Patients. *Obesity*, 2011, 19(11):2235-40
 14. ***Kasumov T**, Sharma N, Huang H, Kombu SR, Cendrowski A, Stanley WC, Brunengraber H, Dipropionylcysteine ethyl ester compensates for loss of citric acid cycle intermediates during post ischemia reperfusion in the pig heart. *Cardiovascular Drugs and Therapy*, 2009, 23(6): 459-69. PMID: PMC2873150
 15. Zhang G-F, Kombu RS, **Kasumov T**, Han Y, Sadhukhan S, Zhang J, Sayre LM, Ray D, Gibson KM, Anderson V A, Tochtrop GP, and Brunengraber H, Catabolism of 4-hydroxyacids and 4-hydroxynonenal via 4-hydroxy-4-phosphoacyl-COAs *J Biol Chem*, 2009,

284(48): 33521-34. PMID: PMC2785196

16. Dasarathy S, **Kasumov T**, Edmison JM, Gruca LL, Bennett C, Duenas C, Marczewski S, McCullough AJ, Hanson RW, Kalhan SC, Glycine and urea kinetics in non-alcoholic steatohepatitis in human: effect of intralipid infusion. *Am J Physiol Gastrointest Liver Physiol.* 2009, 297 (3): 656-675. PMID: PMC2739817
17. Haus JM, Kashyap SR, **Kasumov T**, Zhang R, Kelly KR, Defronzo RA, Kirwan JP. Plasma ceramides are elevated in obese subjects with type 2 diabetes and correlate with the severity of insulin resistance. *Diabetes*, 2009; 58(2): 337-43. PMID: PMC2628606
18. Deng S, Zhang G, **Kasumov T**, Roe CR, Brunengraber H, Interrelations between C4-ketogenesis, C5-ketogenesis and anaplerosis in the perfused rat liver. *J Biol Chem*, 2009, 284(41):27799-807. PMID: PMC2788830
19. Yang L, Kombu RS, **Kasumov T**, Zhu SH, Cendrowski AV, David F, Anderson VE, Kelleher JK, Brunengraber H. Metabolomic and mass isotopomer analysis of liver gluconeogenesis and citric acid cycle. I. Interrelation between gluconeogenesis and cataplerosis; formation of methoxamates from aminooxyacetate and ketoacids. *J Biol Chem.* 2008; 283(32):21978-87. PMID: PMC2494924
20. Yang L, **Kasumov T**, Kombu RS, Zhu SH, Cendrowski AV, David F, Anderson VE, Kelleher JK, Brunengraber H. Metabolomic and mass isotopomer analysis of liver gluconeogenesis and citric acid cycle: II. Heterogeneity of metabolite labeling pattern. *J Biol Chem*, 2008; 283(32):21988-96. PMID: PMC2494921
21. **Kasumov T**, Cendrowski A, David F, Jobbins K, Anderson VE, and Brunengraber H. Mass Isotopomer study of anaplerosis from propionate in the perfused rat heart. *Arch. Biochem., Biophys.* 2007; 463(1):110-117. PMID: PMC2047339
22. Kovacs W J, Khanichi N T, Shackelford J E, Duan X, **Kasumov T**, Kelleher J K, Brunengraber H., and Krisans S K, Localization of the pre-squalene segment of the isoprenoid biosynthetic pathway in mammalian peroxisomes. *Histochem Cell Biol*, 2007,127(3):273-9.
23. Bian F, **Kasumov T**, Jobbins K, Minkler PE, Anderson VE, Kerner J, Hoppel CL, and Brunengraber H. Competition between acetate and oleate for the formation of malonyl-CoA and mitochondrial acetyl-CoA in the perfused rat heart. *J Mol Cell Cardiol.* 2006; 41(5):868-75. PMID: PMC1941666
24. Kinman R, **Kasumov T**, Jobbins K, Thomas K, Adams JE, Brunengraber L, Kutz G, Brewer WU, Roe CR and Brunengraber H, Parenteral and enteral metabolism of anaplerotic triheptanoin in normal rats. *Am J Physiol Endocrinol Metab.* 2006, **291**(4):E860-6.
25. **Kasumov T**, Adams JE, Bian F, David F, Thomas KR, Jobbins K, Minkler, PE, Hoppel C, Brunengraber H, Probing peroxisomal β -oxidation and the labeling of acetyl-CoA proxies with [1- 13 C]octanoate and [3- 13 C]octanoate in the perfused rat liver. *Biochem. J.* 2005; **389**, 397-401. PMID: 1175117
26. Bian F, **Kasumov T**, Thomas KR, Jobbins KA, David F, Minkler PE, Hoppel CL, Brunengraber H. Peroxisomal and mitochondrial oxidation of fatty acids in the heart,

- assessed from the ^{13}C labeling of malonyl-CoA and the acetyl moiety of citrate. *J Biol Chem.* 2005; 280(10):9265-71.
27. **Kasumov T**, Comte B, Puchowicz M, Brunengraber LL, Jobbins K., Thomas K, Nissim I, Brunengraber H. New metabolites of phenylbutyrate in humans and rats. *Drug Metabolism and Disposition*, 32(1): 10-19 (2004).
 28. Reszko AE, **Kasumov T**, David F, Thomas KR, Jobbins KA, Cheng JF, Lopaschuk GD, Dyck JR, Diaz M, Des Rosiers C, Stanley WC, Brunengraber H. Regulation of malonyl-CoA concentration and turnover in the normal heart. *J Biol Chem.* 2004; 279(33):34298-301.
 29. Reszko AE, **Kasumov T**, David F, Jobbins K, Thomas K. Hoppel CL, Stanley WC, Brunengraber H, Des Rosiers C. Peroxisomal fatty acid oxidation is a major source of the acetyl moiety of malonyl-CoA in rat heart. *J. Biol. Chem.* 2004; 279(19):19574-9.
 30. Bederman IR, **Kasumov T**, Reszko AE, David F, Brunengraber H, Kelleher JK. In vitro modeling of fatty acid synthesis under conditions simulating the zonation of lipogenic [^{13}C]acetyl-CoA enrichment in the liver. *J Biol Chem.* 2004; 279(41):43217-26.
 31. Bederman IR, Reszko AE, **Kasumov T**, David F, Wasserman DH, Kelleher JK, Brunengraber H. Zonation of labeling of lipogenic acetyl-CoA across the liver: implications for studies of lipogenesis by mass isotopomer analysis. *J Biol Chem.* 2004; 279(41):43207-16.
 32. Reszko AE, **Kasumov T**, Pierce BA, David F, Hoppel CL, Stanley WC, Des Rosiers C, Brunengraber H. Assessing the reversibility of the anaplerotic reactions of the propionyl-CoA pathway in heart and liver. *J Biol Chem.* 2003; 278(37): 34959-65.
 33. Stanley W.C., Krivillo, K., Panchal, A., Hallowell, P., Bomont, C., **Kasumov, T.**, Brunengraber, H. Dipruvyl-acetyl-glycerol decreases infarct size following coronary artery ligation in the pig. *Cardiovasc Drugs Therapy*, 2003; 17(3): 209-16.
 34. Brunengraber DZ, McCabe BJ, **Kasumov T**, Alexander JC, Chandramouli V, Previs SF. Influence of diet on the modeling of adipose tissue triglycerides during growth. *Am J Physiol Endocrinol Metab.* 2003; 285(4): E917-25.

PART II: Technical papers

1. **Kasumov T**, Willard B, Sadygov RG. Current Bioinformatics Challenges in Proteome Dynamics using Heavy Water-based Metabolic Labeling. *J Data Mining Genomics Proteomics.* 2014;5(1):e112-14
2. Kalita M, **Kasumov T**, Brasier AR, Sadygov RG, Use of theoretical distributions in phosphoproteome analysis, *J Proteome Res.* 2013, 12(7), 3207-14.
3. Ilchenko S, Previs SF, Rachdaoui N, Willard B, McCullough AJ, ***Kasumov T**. An improved measurement of isotopic ratios by high resolution mass spectrometry. *J Am Soc Mass Spectrom*, 2013; 24(2):309-312.
4. ***Kasumov T**, Ilchenko S, Le L, Sadygov R, Willard B, McCullough AJ, Previs S, Measuring of protein synthesis using metabolic ^2H -Labeling, high-resolution mass spectrometry and a new

- algorithm. *Analytical Biochemistry*, 2011; 412(1), 47-55. PMID: PMC3635850
5. Rachdaoui N, Austin L, Kramer E, Previs MJ, Anderson VE, **Kasumov T**, Previs SF. Measuring proteome dynamics *in vivo*: As easy as adding water? *Mol Cell Proteomics* 2009; 8(12): 2653-2663. PMID: PMC2816015
 6. ***Kasumov T**, Huang H, Chung YM, Zhang R, McCullough AJ and Kirwan JP, Quantification of Ceramide species in biological samples by liquid chromatography-electrospray tandem mass spectrometry. *Analytical Biochemistry*, 2010, 401(1):154-61. PMID: PMC2872137
 7. **Kasumov T**, Gruca LL, Dasarathy S, Kalhan SC. Simultaneous assay of isotopic enrichment and concentration of guanidinoacetate and creatine by gas chromatography-mass spectrometry. *Analytical Biochemistry*, 2009, 395 (1), 91-99.
 8. Wand X, Stanley W, Brunengraber H, **Kasumov T**. Assay of the activity of malonyl-Coenzyme A decarboxylase by gas chromatography-mass spectrometry. *Analytical Biochemistry*, 2007; **363**, 169-174.
 9. Yang L, **Kasumov T**, Lynn Yu, Jobbins K, Thomas K, David F, Previs SF, Kelleher J K, Brunengraber H, Matabolomic assays of the concentration and mass isotopomer distribution of gluconeogenic and citric acid cycle intermediates. *Metabolomics*, 2006; **2**, 85-94.
 10. Minkler PE, Kerner J, **Kasumov T**, Parland W, Hoppel CL, Quantification of malonyl-coenzyme A in tissue specimens by high-performance liquid chromatography/mass spectrometry. *Analytical Biochemistry*, 2006, 352 (1), 24-32.
 11. **Kasumov T**, Martini WZ, Reszko AE, Bian WZ, Pierce BA, David F, Roe CR, Brunengraber H. Assay of the concentration and ¹³C-isotopic enrichment of propionyl-CoA, methylmalonyl-CoA and succinyl-CoA by gas chromatography-mass spectrometry. *Analytical Biochem.* 2002; 305, 90-96.
 12. Comte B, **Kasumov T**, Pierce B, Puchowicz M, Scott ME, Dahms W, Kerr D, Nissim I, Brunengraber H. Identification of a new metabolite of phenylbutyrate metabolism in humans: phenylbutyrylglutamine. *J Mass Spectrometry*, 2002; 37, 581-590.
 13. Reszko AE, **Kasumov T**, Comte B, Pierce BA, David F, Bederman IR, Deutch J, Des Rosiers C, Brunengraber H. Assay of the concentration and ¹³C-isotopic enrichment of malonyl-CoA by gas chromatography-mass spectrometry. *Analytical Biochem.* 2001, 298, 69-75.

Part III: Chemical papers

1. ***Kasumov T**, Brunengraber H. An improved procedure for the synthesis of labelled fatty acids utilizing diethyl malonate. *J. of Labelled Comp. and Radiopharm*, 2006, **29**, 171-176.
2. Pirgulyev NS, Brel VK, **Kasumov TM**, Grishin, YK, Zefirov, NS, and Stang PJ Xenon fluorotriflate: an efficient reagent for the synthesis of (p-phenylene) bisiodonium salts. *Synthesis*, 1999; 1297-1299.
3. Pirgulyev NS, Brel VK, **Kasumov TM**, Zefirov NS, Stang PJ Synthesis of E-[β-(methansulfonyloxy-1-alkenyl)]-(phenyl)- and Z-[β-(methansulfonyloxy-1-alkenyl)](phenyl)-iodonium methansulfonate. *Zh. Org. Khim.* 1999; 35:(11) 1633-1636.
4. ***Kasumov TM**, Pirgulyev NS, Brel VK, Grishin YK, Zefirov NS, Stang P. New One-Pot

Method for the Stereoselective Synthesis of (E)-[β -(trifluoromethyl-sulfonyloxy)-alkenyl]-(aryl)iodonium triflates. *Tetrahedron*, 1997; 53: 13139-48.

5. ***Kasumov TM**, Brel VK, Koz'min AS, Zefirov NS, Stang PJ, Potekhin, K.A. Xenon fluoride triflate as a new oxidant for the generation of aryliodoso-derivatives as a key intermediates in the synthesis of diaryliodonium salts. *New J of Chem*, 1997, 21: 1347-51

6. ***Kasumov TM**, Koz'min AS, Zefirov NS. Chemistry of inorganic sulfonates and sulfates of polyvalent iodine. *Russ Chem Rev.* 1997, 66: 843-857.

7. ***Kasumov TM**, Brel VK, Grishin YK, Zefirov NS, Stang PJ. Oxidative properties of xenon (II) compounds. A new convenient method of synthesis of bis(trifluoroacetoxy)iodo]arenes bis(trifluoroacetoxy)iodo]perfluoroalkanes and μ -oxobridged aryliodoso derivatives. *Tetrahedron*, 1997, 53: 1145-1150.

8. ***Kasumov TM**, Brel VK, Potekhin KA, Balashova EV, Zefirov NS. Crystal and molecular structure of (Z)-[β -(trifluoromethylsulfonyloxy)-2-phenylvinyl(tolyl)iodonium] triflate. *Doklady Chemistry*, 1996; 351(5): 312-316.

9. Chekhlov, AN, **Kasumov TM**, Brel VK, Zefirov NS. Synthesis and crystal and molecular structure of μ -oxobis[trifluoroacetato(p-tolyl)iodine]. *Journal of Structural Chemistry*; 1996, 37: 800-806.

10. ***Kasumov TM**, Brel VK, Potekhin KA, Koz'min AS, Balashova EV, Struchkov YT, Zefirov NS. Crystal and molecular structure of 4,4'-[bis(phenyliodonium)]diphenylmethane ditriflate. *Doklady Chemistry*, 1996; 351(5): 194-197.

11. **Kasumov TM**, Brel VK, Koz'min AS, Zefirov NS. Phenyliodine (III) sulfate as a new reagent for the synthesis of diaryliodonium salts. *Synthesis*; 1995, 775-76.

12. ***Kasumov TM**, Grishin YK, Sorokin VD, Koz'min AS, Yashkir VA, Zefirov NS. Reaction of iodosyl fluorosulfate with fluorine containing alkenes of norbornane series. *Russian Journal of Organic Chemistry*, 1995, 31: 788-793.

13. **Kasumov TM**, Sorokin VD, Koz'min AS, Potekhin KA, Yashkir AV, Struchkov YT, Zefirov NS. Iodosyl fluorosulfate-a new reagent for the synthesis of γ -sulfones of norbornane series. *Sulfur Letters*, 1994; 18:71-78.

14. Zefirov NS, **Kasumov TM**, Sorokin, VD, Koz'min AS, Polishuk VR. Reaction of iodosyl fluorosulfate with alkenes. *Russian Journal of Organic Chemistry*, 1994; 30: 341-352.

15. Sorokin VD, **Kasumov TM**, Koz'min AS, Potekhin KA, Struchkov YT, Zefirov NS. Crystal and molecular structure of methyl ester of 3-endo-iodo-4-anti-fluorosulfonyloxy-11-hydroxy-9-oxatetracyclo[5.4.0^{2,5}.0^{6,10}]dodecan-8-one-12-carboxy acid. *Doklady Chemistry*, 1993; 329(2): 80-83.

16. **Kasumov TM**, Sorokin VD, Koz'min AS, Potekhin KA, Struchkov YT, Zefirov NS. Crystal and molecular structure of 6-endo-iodo-7-oxy-9-methoxy-carbonyltricyclo[3.2.2^{2,4}]-nonan-8-carbonic acid. *Dokl. Acad. Nauk*, 1993, 332(2): 187-190.

17. **Kasumov TM**, Sorokin VD, Koz'min AS, Potekhin KA, Yashkir AV, Krylov YT, Struchkov YT, Zefirov NS. Crystal and molecular structure of 2-exzo-(N-acetamido)-5-exzo-trifluoromethyl-7-sin-iodonorbornane. *Dokl. Acad. Nauk*, 1993, 333(1): 40-44.

18. **Kasumov TM**, Koz'min AS, Sorokin VD, Zhdankin VV, Stang PJ, Zefirov N. Iodosyl fluorosulfate - a new reagent for the direct synthesis of diaryliodonium salts. *Synthesis*, 1993; 1209-1210.

19. Zefirov NS, Koz'min AS, **Kasumov TM**, Potekhin KA, Sorokin VD, Brel VK, Abramkin EV, Struchkov YuT, Zhdankin VV, Stang PJ. Interaction of an allene with polyvalent iodine derivatives. Preparation, X-ray molecular structure, and some reactions of phenyl(2,2-dimethyl-phosphonyl)-2,5-dihydro-3-furyliodonium salts. *J Org Chem*, 1992; 57: 2433-2437.

BOOK CHAPTERS

1. Zhang G-F, Li Q, Li L, **Kasumov T***. Metabolomics research with tandem mass spectrometry. In Tech, "*Tandem Mass Spectrometry*", 2012.

2. Previs SF, Zhou H, Wang SP, Herath K, Johns D G, Roddy T P, **Kasumov T**, Hubbard BK, Proteome kinetics: Coupling the administration of stable isotopes with mass spectrometry-based analyses. InTech, "*Proteomics / Book 2*", 2012.

3. **Kasumov T.***, Willard B., Li L., Sadygov R., Previs S. Dynamic Proteomics with heavy water: Instrumentation, Data Analysis and Biological Application. InTech, "*Proteomics/Book 2*", 2015, in press.

INVENTION

Brunengraber H, David F, Cooper K, Bomont C, Hallowell PT, **Kassoumov T**, Medical uses of Pyruvate. U.S. Patent 6,086,789. July 11, 2000.