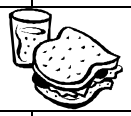
13th Symposium On The Cannabinoids
2003 Program

Tuesday June 24th – Registration and Reception

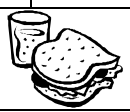
Wednesday June 25th

7:00	**Breakfast** 		
SAR and Ligand Receptor Interactions ➢*Chairs:*			
8:45	Fong, T.M., Goulet, M., Hagmann, W., Plummer, C., Finke, P., Mills, S., Shah, S., Truong, Q., Shen, C., Lao, J., Chen, J., Schaeffer, M.T., Guan, X., Yu, H., Gibson, R., Patel, S., Marsh, M., Feng, Y., MacNeil, D., Camacho, R., Stribling, S., Shearman, L., Strack, A., MacIntyre, E., and Van der Ploeg, L.	Biological and Pharmacological Activity of a New CB_1R Inverse Agonist	1
9:00	Huffman, J.W., Wu, M-J., Lu, J., Hynd, G., Steelman, K., Thompson, Bushell, S., Reggio, P.H., Tartal, C., Wiley, J.L., and Martin, B.R.	Structure–Activity Relationships for 1-Alkyl-3-(1-Naphthoyl) Indoles, Steric and Electronic Effects of Naphthoyl Substituents	2
9:15	Lu, D., Thakur, G.A., McLaughlin, P.J., Swezey, L.A., Winston, K.M., Wisniecki, A., Salamone, J.D., Jarbe, T.U.C., Reggio, P., George, C., and Makriyannis, A.	Adamantyl Cannabinoids	3
9:30	Seltzman, H., Hyatt, S.M., Roche, M.J., Al-Masum, M., Abood, M.E., McAllister, S.D., and Reggio, P.H.	SR Analogs to Probe for a Proposed Hydrogen Bonding Interaction in the CB_1 Receptor	4
9:45	Thomas, A., Ross, R.A., Razdan, R.K., Saha, B., Mahadevan, A., and Pertwee, R.G.	Structural Determinants of Pharmacological Actions of Cannabidiol in the Mouse Isolated Vas Deferens	5
10:00	**Coffee** 		
10:30	Ballesteros J., Li, N., Salom, D., Sieg, D.J., Bennett, T., Miller, J., Ransom, J., Reggio, P.H., Huffman, J.W., and Palczewski, K.	Structure-Function and Crystallization of CB_1-CB_2 Receptors	6
10:45	Ross R., De Silva, A., Mathieson, F., Christopoulos, A., and Pertwee, R.	Studies of the Dissociation Kinetics of [^{3}h]CP55940 in Mouse Brain Membranes	7

11:00	Reggio Patricia H. Reggio[1], Dow P. Hurst, [1] Juan A. Ballesteros[2] and Diane L. Lynch[1]	The CB_1 V6.43/i6.46 Groove is Optimally Placed in the Lipid Bilayer to Recognize Endocannabinoids in Lipid	8
11:15	Shim, J-Y., and Howlett, A.C.	Prediction of the CB_1 Cannabinoid Receptor Region Critical for the Binding of Aminoalkylindole (AAI) WIN55212-2	9
11:45	**Lunch** 		
1:30-4:00	**Poster Session** **Coffee**  *Structure-Activity Relationships Receptor Interactions Endocannabinoids*		69-93
Endocannabinoids ➤*Chairs:*			
4:15	Tsuboi, K., Sun, Y-X., Okamoto, Y., Tonai, T., Murakami, M., Kudo, I., and Ueda, N.	Enzymatic Studies on an Anandamide Biosynthetic pathway via *N*-Acyl-lysophosphatidylethanolamine	10
4:30	Wiley, J.L., LaVecchia, K.L., Mahadevan, A., Razdan, R.K., and Martin, B.R.	Discriminative Stimulus Effects of 0-1812, a Potent Metabolically Stable Anandamide Analog	11
4:45	Chu, C.J., Huang, S.M., De Petrocellis, L., Bisogno,T., Ewing, S.A., Miller, J.D., Zipkin, R.E., Daddario, N., Appendino, G., Di Marzo, V., and Walker, J.M.	*N*-Oleoyldopamine: a Novel Endogenous Lipid that Activates VR1/CB_1 Receptors, Produces Hyperalgesia, and is Recognized by the Anandamide Membrane Transporter	12
5:00	O'Sullivan, S., Kendall, D., and Randall, M.	Vasorelaxant Properties of the Novel Endocannabinoid N-Arachidonoyl-Dopamine (NADA)	13
5:15	Gardner, B., Zhu, L.X., Tashkin, D.P., Sharma, S., and Dubinett, S.M.	Methanandamide Increases Tumor Growth in Murine Lung Cancer via a Map Kinase Dependent Signaling Pathway Associated with an Increase of COX-2	14
5:30	Sugiura, T., Kishimoto, S., Oka, S., Gokoh, M., Muramatsu, M., and Waku, K.	Physiological roles of 2-Arachidonoylglycerol as the True Natural Ligand for the CB_2 Receptor	15
7:00	**Dinner** 		

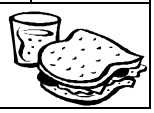
Thursday June 26th

7:00	**Breakfast** 		
Cannabinoid Receptor Signaling ➤*Chairs:*			
8:45	Bhartur, S.G., Wallis, K.T., Niehaus, J.L., Jones, J.T., and Lewis, D.L.	Identification and Partial Characterization of a Novel Protein, CB_1-IP1, that Interacts with the Human CB_1 Cannabinoid Receptor	16

9:00	Evans, R., Roderick Scott, R., and Ruth Ross, R.	Anandamide is More Potent as a TRPV1 Agonist When Applied to the Intracellular Compared with the Extracellular Environment of Rat Cultured DRG Neurones	17
9:15	Kelley, B.G., and Thayer, S.A.	THC Acts as an Antagonist to the Endocannabinoid 2-Arachidonyl Glycerol	18
9:30	Patel, S., Rademacher, D.J., and Hillard, C.J.	Dopaminergic Determinants of Endocannabinoid Synthesis within the Limbic Forebrain: Evidence for Aanatomically Specific and Activity-Dependent Fformation *in vivo*	19
9:45	Pistis, M., Perra, S., Pillolla, G., Melis, M., Muntoni, A.L., and Gessa, G.L.	Cannabinoids Modulate Neuronal Ffiring in the Rat Baso-Lateral Amygdala	20
10:00	Tiziana, R., Viganò, D., Graziani, G., and Parolaro, D.	Activation of Multiple Transcription Factors by Acute and Chronic Exposure to THC	21
10:15	Riegel, A.C., Williams, J.T., and Lupica, C.R.	Cannabinoid Receptor Activation Depresses $GABA_b$-Mediated Synaptic Responses in Dopamine Neurons	22
10:30	**Coffee** 		
11:00	Szabo, B., Than, M., and Thorn, D.	Analysis of the Depression of Gabaergic Neurotransmission by Cannabinoids in the Cerebellar Cortex	23
11:15	Fride, E., Feigin, C., Ponde, D., Breuer, A., Hanuš, L., and Mechoulam, R.	Effects of Cannabidiol Analogues on Intestinal Motility: Possible Application for Inflammatory Bowel Disease	24
11:30	Wright, K., Rooney, N., Tate, J., Feeney, M., Robertson, D., Welham, M., and Ward, S.	Functional Cannabinoid Receptor Expression in Human Colonic Epithelium	25
11:45	Breivogel, C., Lambert, J., and Parekh, B.	The Role of Beta-Arrestin2 in Brain Cannabinoid Receptor Regulation	26
12:00	Bab, I., Ofek, O., Fogel, M., Attar-Namdar, M., Shohami, E., Mechoulam, R.	Role of CB_2 Cannabinoid Receptor in the Regulation of Bone Remodeling	27
12:15	Begg, M. Mo, F-M., Offertáler, L., Razdan, R., Lovinger, D., and Kunos, G.	Identification of a ca^{2+}-Dependent k^+ Current and its Modulation by Atypical Cannabinoid Ligands in Cultured Human Umbilical Vein Endothelial Cells (HUVEC)	28
12:30	Elphick, M.R., Egertová, M., Soderstrom, K., Thorndyke, M.C., Satou, Y., and Satoh, N.	*CICBR*: the First Putative Cannabinoid Receptor Gene to be Identified in an Invertebrate	29
12:45	Nunez, E., Cabranes, A., Ramos, J.A., Depaulis, A., Deransart, C., Rodríguez-Caravaca, G., and Romero, J.	Changes in Cannabinoid CB_1 Receptors in the Genetically Absence Epilepsy Rat from Strasbourg (GAERS)	30
1:15	**Lunch** 		
2:30	**Leave for Upper Canada Village**		
3:15-6:30	**Tours**		
7:00	**Banquet at Upper Canada Village** 		

8:30	**Return to NAV Conference Center**

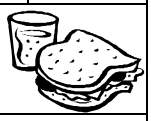
Friday June 27th

7:00	**Breakfast** 		
Immune Functions; Reproduction, Hormones & Development ➢*Chairs:*			
8:45	Carrier, E.J., Kearn, C.S., and **Error! Reference source not found.**, C.J.	M-CSF-Dependent Proliferation of Rat Microglial Cells is Enhanced by the Endocannabinoid 2-Arachidonylglycerol	31
9:00	Rockwell, C., and Kaminski, N.	Inhibition of Interleukin-2 Production by 2-Arachidonylglycerol is Partially Mediated by Peroxisome Proliferator Activated Receptor Gamma (PPARγ)	32
9:15	Roth, M.D., Dalal, A., Akande, O.I., Kiertscher, S.M., and Tashkin, D.P.	Δ9-Tetrahydrocannabinol Modulates the Differentiation and Maturation of Human Monocyte-Derived Dendritic Cells	33
9:30	Maccarrone, M., Di Rienzo, M., Finazzi-Agrò, A., and Rossi, A.	Activation of the Anandamide Hydrolase Promoter in Human t Lymphocytes by Leptin	34
9:45	**Coffee** 		
10:15	Bradshaw, H.B., and Walker, J.M.	Levels of Endocannabinoids and Related Lipid Mediators in the Female Rat Reproductive Tract Change as a Function of Hormonal Status	35
10:30	Burkman, L.J., Sugiura, T., Makriyannis, A., and Schuel, H.	Anandamide and 2-Arachidonoylglycerol are Present in Rabbit Reproductive Organs, and can Modulate Motility of Human Sperm	36
Appetite and Feeding ➢*Chairs:*			
10:45	Fride, E., Ezra, D., Suris, R., Weisblum, R., Blau, H., and Feigin, C.	Role of CB_1 Receptors in Newborn Feeding and Survival: Maintenance of Ultrasonic Distress Calls and Body Temperature	37
11:00	Thornton-Jones, A.D., Vickers, S.P., and Clifton, P.G.	The Cannabinoid CB_1 Receptor Antagonist SR 141716A Reduces Incentive Motivation for Food	38
11:15	Trillou, C.R., Delgorge,C., Arnone, M., and Soubrié, P.	Invalidation of the CB_1 Cannabinoid Receptor in Mice Results in Leaness and Resistance to Diet-Induced Obesity	39
11:30	McLaughlin, P.J., Winston, K.M., Swezey, L.A., Wisniecki, A., Aberman, J., Tardif, D.J., Makriyannis, A., and Salamone, J.D.	SR141716A and AM251 Suppress Food Intake and Food-Reinforced Behavior in a Variety of Tasks in Rats	40
12:00	**Lunch** 		

1:30-4:30	**Poster Session** *Cannabinoid Receptor Signaling* *Immune Functions* *Appetite and Feeding* *Pain and Inflammation*		94-132
Pain and Inflamation ➢*Chairs:*			
5:00	Welch, S.P., Haller, V.L., and Cichewicz, D.	Non-CB_1, Non-CB_2, Non-VR1 Antinociceptive Effects of Cannabinoids and Endocannabinoids in the PPG Test	41
5:15	Cichewicz, D.L., Rubo, A., and Welch, S.P.	Recovery of Morphine- and Codeine-Induced Antinociception by Delta-9-Tetrahydrocannabinol	42
5:30	Liu, Q.Q., Walker, J.M.	Effects of Cannabinoid on Noxious Stimulus-Evoked Firing of Spinal Neurons in a Rodent Model of Neuropathic Pain	43
5:45	Lichtman, A.H., Shelton, C.C., Advani, T., Martin, B.R., and Cravatt, B.F.	FAAH Plays a Critical Role in Modulating Pain Through the Regulation of Endogenous Anandamide	44
6:00	Burstein, S.H., Liu, J., Li, H., Zurier, R.B., and Chen, J.D.	PPAR–$\tilde{\gamma}$ a Possible Receptor for Ajulemic Acid	45
6:15	Reda, H., Petersen, K.L., Jay, C., Rowbotham, M.C., Hilton, J.F., Vizoso, H., Shade, S., and Abrams, D.I.	The Effects of Smoked Marijuana on Chronic Neuropathic Pain and Experimentally-Induced Pain in HIV Patients with Peripheral Neuropathy – a Feasibility Study	46
6:30	McKerral, S., Berman, J., Lee, J., Cannon, A., Sach, J., Taggart, M., Symonds, C., Fisher, K., and Birch, R.	Efficacy of Two Cannabis Based Medicinal Extracts for Relief of Central Neuropathic Pain from Brachial Plexus Avulsion: Results of a Randomized Controlled Trial	47
7:00	**Dinner** 		

Saturday June 28th

7:00	**Breakfast** 		
Tolerance and Dependence ➢*Chairs:*			
8:45	Dewey, W.L., Welch, S.P., Martin, B.R., Razdan, R.K., and Smith, F.L.	Behavioral Tolerance and Cross Tolerance to delta-9-THC for Anadamide and a Stable Analog of Meth-Anandamide	48
9:00	Hoffman, A.F., Caulder, T., Oz, M., and Lupica, C.R.	Repeated Cannabinoid Administration Produces Functional Tolerance and Blocks Long-Term Depression at Excitatory Synapses in the Nucleus Accumbens	49
9:15	Damaj, M.I., Orgain, F.M., and Martin, B.R.	The Interaction of Nicotine and Delta9-Tetrahydrocannabinol: A Pharmacological and Genetic Approach	50

9:30	**Coffee** 		
Adverse Effects ➢*Chairs:*			
10:30	Sarafian, T., Lin, D., Badal, K., Balian, A., Tashkin, D., and Roth, M.	Gene Expression Microarray Analysis of THC-Treated Lung Epithelial Cells	51
10:45	Muntoni,A.L., Pillolla, G., Pistis, M., Melis, M., and Gessa, G.L.	Modulation of Spontaneous and Evoked Locus Coeruleus Neuronal Activity by Cannabinoids	52
11:00	Fried, P., Gray, R., and Watkinson, B.	Impact of Marihuana on Specific Cognitive Domains: a Within- and Between-Subject Longitudinal Assessment	53
11:15	Smith, A., Fried, P., Hogan, M., and Cameron, I.	An FMRI Investigation of the Effects of Regular Current use of Marijuana on Working Memory	54
11:30	Brett, R., Egerton, A., and Pratt, J.	THC-Induced Deficits in a Rodent Attentional Set-Shifting Task; Correlation with Alterations in Regional Neural Activation	55
11:45	Mallet, P., O'Shea, M., Singh, M., and McGregor, I.	Residual Age-Related Alterations in Behavior and FOS Immunoreactivity Following Repeated Cannabinoid Exposure in Rats	56
12:15	**Lunch** 		
Therapeutic Potential ➢*Chairs:*			
1:45	Le Fur, G., Cohen, C., Steinberg, R., and Soubrié, P.	Effects of Rimonabant (SR141716) in Smoking Cessation	57
2:00	Brady, C., DasGupta, R., Wiseman, O., Berkley, K., and Fowler, C.	Sublingual Cannabis Based Medicinal Extracts for Bladder Dysfunction in Advanced Multiple Sclerosis	58
2:15	Glass, M., van Dellen, A., Colin Blakemore, C., Hannan, A.J., and Faull, R. L.M.	Delayed Onset of Huntingtons in Mice Correlates with Delayed Loss of Cannabinoid CB_1 Receptors	59
2:30	Blazquez, C., Casanova, M.L., Huffman, J.W., Jorcano, J.L., and Guzmán, M.	Cannabinoids Inhibit VEGF Signaling in Brain Tumors	60
2:25	Di Marzo, V., Ligresti, A., Bisogno, T., Cascio, M.G., Portella, G., Bifulco, M., and Sorrentini, I.	Tonic Control of Tumoral Growth by Endocannabinoids	61
3:00-4:30	**Poster Session** *Tolerance and Dependence* *Adverse Effects* *Therapeutic Potential* *Neuroprotection*		133-154
4:45	Massi, P., Vaccani, A., Parolaro, D.	Antitumor effect of Cannabidiol, a Non-Psychoactive Cannabinoid, on Human Glioma Cell Lines	62
5:00	Russo, E., Merzouki, A., Mesa, J.M., and Frey, K.	Cannabis Improves Night Vision: a Pilot Study of Visual Threshold and Dark Adaptometry in KIF Smokers in the RIF Region of Northern Morocco	63

5:15	Wallace, M.J., Blair, R.E., Falenski, K.W., Martin, B.R., Somabati, S., and DeLorenzo, R.	CB_1 Receptor Plasticity in the Pilocarpine Model of Epilepsy	64
Neuroprotection ➤*Chairs:*			
5:30	Fernandez-Ruiz, J., Lastres-Becker, I., Gómez, M., Sagredo, O., Mechoulam, R., and Ramos, J.A.	Cannabinoids Provide Neuroprotection in the Rat Model of Parkinson's Disease Generated by Unilateral Injection of 6-Hydroxydopamine	65
5:45	Monory, K., Marsicano, G., Goodenough, S., Hermann, H., Eder, M., Cannich, A., Azad, S.C., Cascio, M.G., Gutiérrez, S.O., van der Stelt, M., López-Rodriguez, M.L., Schütz, G., Zieglgänsberger, W., Di Marzo, V., Behl, C., and Lutz, B.	The Endocannabinoid System in Principal Forebrain Neurons Protects Against Excitotoxicity	66
6:00	van der Stelt, M., Veldhuis, W.B., Wadman, M.W., van Zadelhoff, G., Fezza, F., Veldink, G.A., Vliegenthart, J.F.G., Bär, P.R., Nicolay, K., and Di Marzo, V.	Mechanisms Underlying in VIV0 Neuroprotection by Anandamide and the CB_1/VR_1 'Hybrid' Agonist Arvanil	67
6:15	Parker, L., Mechoulam, R., Burton, P., and Yakiwchuk, C.	Δ^9-Tetrahydrocannabinol and Cannabidiol Potentiate Extinction of Cocaine- and Amphetamine-Induced Place Preference Learning	68
7:00	**Business Meeting**		
7:45	**Award Dinner** *Congratulations!* 		

1:30-4:00	**Poster Session** **Coffee**  *Structure-Activity Relationships Receptor Interactions Endocannabinoids*		69-93-
Francisco, M.E., Howlett, A.C., Keenan, S.M., Yu, S-J., and Welsh, W.J.		Pharmacological Profile of Biaryl 1,2,4-Triazoles in Cannabinoid Receptors	69
Knight, L.W., Huffman, J.W., and Isherwood, M.L.		Pyrrole-Based Non-Traditional Cannabinoids	70
Parkkari, T., Savinainen, J.R., Tolonen, T.L., Rauhala, A.L., Nevalainen, T., Laitinen, J.T., Gynther, J., and Järvinen, T.		Synthesis and CB_1 Receptor Activities of Arachidonyl Alcohol Derivatives	71
Salo, O.M.H., Järvinen, T., Gynther, J., and Poso, A.		Building and Validating a 3d Model for the CB_1 Receptor	72
Ligresti, A., Ortar, G., de Lago, E., De Petrocellis, L., Morera, E., Fernandez-Ruiz, J., and Di Marzo, V.		Novel Selective and Metabolically Stable Inhibitors of Anandamide Cellular Uptake	73
Marriott, K-S., Huffman, J.W., Wiley, J.L., and Martin, B.R.		Synthesis of Hexahydrocannabinols: Structure-Activity Relationship Studies of Potential CB_2 Selective Ligands	74
Muccioli, G.G., Poupaert, J.H., Martin, D., Wouters, J., and Lambert, D.M.		Microwave-Assisted Synthesis of N_3-Substituted-5,5'-Diphenylimidazolidinediones, a Class of CB_1 Antagonists	75
Thompson, A.L.S., Huffman, J.W., Wiley, J.L., and Martin, B.R.		Deoxy Analogs of CP-47,497 as Potential CB_2 Selective Ligands	76
Hart, R., Hurst, D.P., and Reggio, P.R.		The CB_1 TMH 2-3 Region Forms the Binding Site for (+)-7-OH-CBD-DMH	77