Scientific programme

Sunday 11 October

14:00-19:00 Registration (Congress Centre)

19:00-19.40 OPENING CEREMONY

Lectio Magistralis

19:40-20:20 O1. Generating and Testing Hypotheses in the (Post-)Genomic-Era: Computational Experiments as a Prelude to Biological Validation
D. ROOS (USA)

20.30 Get together party (Sala Expo, Congress Centre)

Monday 12 October

9:00-9:40 **GENOMICS**
Chairs: J. WASTLING (UK), R. D. ADAM (USA)

Invited speakers' lectures

O2 The *Cryptosporidium muris* genome.
G. WIDMER (USA)

O3 Comparative genomics of *Giardia duodenalis*.
H. MORRISON (USA)

9:40-10:30 **Oral Presentations**

O4 Massive high-throughput sequencing of the *Giardia lamblia* genotype B isolate GS reveals genomic differences. O. Franzen, J. Jerlström-Hultqvist, E. Castro, E. Sherwood, J. Ankarklev, D. Reiner, D. Palm, J. Andersson, B. Andersson and S. Svärd

O5 Genome sequence of *Giardia* assemblage E isolate P15 and comparative genomics of assemblages A, B and E. J. Jerlström-Hultqvist. O. Franzén, E. Castro, J. Ankarklev, D. Palm, J. O. Andersson, S.G. Svärd and B. Andersson

O6 Putative species specific markers of *Cryptosporidium hominis* and *Cryptosporidium parvum* identified by comparative genomics. M. Bouzid, K. Elwin, S.J. Hadfield, D. Heavens, R. Christen, R.M. Chalmers, P.R. Hunter and K.M. Tyler

O7 30,000 ESTs and still counting: Gene expression from sporozoite and meront stages of the *Cryptosporidium parvum* KSU-1 isolate. J. Kissinger, K. Hermetz, K. Woods, G, Hirsch , S.J. Upton and B. Birren

10:30-11:00 COFFEE BREAK

11:00-11:40 **PROTEOMICS AND PROTEIN FUNCTION**

Chairs: H. WARD (USA), F. SPANO (ITALY)

Invited speakers' lectures

O8 The *Cryptosporidium parvum* sporozoite proteome.
J. WASTLING (UK)

O9 Protemics of *Giardia duodenalis.*
J. SAMUELSON (USA)

11:40-12:30 **Oral Presentations**

O10 Subproteomic analysis of the *Cryptosporidium parvum* mitochondrion by using iTRAQ labelling and LC/MS-MS. Del Chierico, F.; Jedelsky, P.L., Petrucca, A., Russo, C., Mancinelli, L., Menichella, D., Tachezy, J. and Putignani, L

O11 Structural and Chemical Study of the *Cryptosporidium* parvum Kinome in Search of Novel Anti-Crypstosporidal Drugs. Hui, R.

O12 *Giardia* expresses one functional Pyruvate:ferredoxin oxido-reductase. Burgess A., Krauer K., Dunn L., Davids B., Gillin F., Eckmann L., and Upcroft J.

O13 Minimal proteome of the reduced mitochondrion in the parasitic protists *Giardia intestinalis.* Jedelsky,P., Dolezal, P., Rada, P., Smid, O., Hrdy, I., Sedinova, M., Voleman, L.' Perry, A., Campo-Beltran, N., Lithgow, T., and Tachezy, J.

12:30-14.00 LUNCH

14:00-14:40 **CELLULAR BIOLOGY -1 (cell cycle and development)**

Chairs: F. GILLIN (USA), J. TACHEZY (Czech Republic)

Invited speakers' lectures

O14 *Giardia* differentiation, from external stimuli to cyst assembly
A. HEHL (Switzerland)

O15 New findings about host parasite relationship with *Cryptosporidium*
A. VALIGUROVA (Czech Republic)

14:40-15:30 **Oral Presentations**

O16 Spindle checkpoint associated genes in *Giardia intestinalis*: mad-2, cyclin-B and aurora kinase shed light on the control mechanism. Jonasova-Markova K., and Nohynkova E.

O17 Cell cycle analysis of *Giardia intestinalis*. Troell K, Jerlström-Hultqvist J, Ankarklev J, Karlsson E, Bernander R, and Svärd S.

O18 Members of the Tubulin Tyrosine Ligase-Like family are responsabile for polyglycylation of g14-3-3 in *Giardia duodenalis.* Lalle M, Blasetti Fantauzzi C, Camerini S, Cecchetti S, Crescenzi M and Pozio E.

O19 The use of flow cytometry for the assessment of distinct physiological stages within *Cryptosporidium parvum* sporozoites post excystation. King, B.J., Hoefel, D., Lim, S.P., Robinson, B.S., and Monis, P.T.

15:30-16:00 COFFEE BREAK

16:00-16:40 **CELLULAR BIOLOGY -2 (Signalling and trafficking)**

Chairs: S. SVARD (SWEDEN), M. LALLE (ITALY)

Invited speakers' lectures

O20 Signaling and trafficking to the host cell in Apicomplexa
J.F. DUBREMETZ (France)

O21 Signal transduction pathways in *Giardia.*
F. GILLIN (USA)

16:30-17:30 **Oral Presentations**

O22 ER quality control and stress response systems in *Giardia*. Spycher C., Morf L., Qi W., Rehrauer H., Aquino Fournier C. and Hehl A.B.

O23 Identification of a Lipoprotein Receptor-related Protein in *Giardia lamblia.* Touz, MC., Miras S., Rópolo, A., and Rivero, M.R.

O24 Triggers and Tricks of Encystation in *Giardia lamblia.* Morf, L., Spycher, C., Rehrauer, H., Aquino Fournier, C., Morrison, H.G., and Hehl, A. B.

O25 Death of *Giardia* – apoptosis or autophagy? Bagchi, S., Oniku, A., and Paget, T.A.

O26 The oxygen-detoxifying flavodiiron protein from *Giardia intestinalis.* Testa F., Mastronicola D., Forte E., Vicente J.B., Sarti P., Teixeira M and Giuffrè A.

17:30-19:30 **Poster sessions 1 and 2 (Sala Expo)**

P1 Sequence map of the 3 Mb *Giardia duodenalis* Assemblage A chromosome. Upcroft J., Krauer K., Burgess A., Dunn L, Chen N., and Upcroft P.

P2 *Giardia lamblia,* a genome-informed approach for effective detection and genotyping. Bennett H.V., Laing K., Butcher P.D., Breathnach A., and Tovar J.

P3 Characterization of Fresh *Giardia intestinalis* Assemblage A Isolates. Ankarklev J

P4 Set-up of HCT-8 cell infection by *Cryptosporidium parvum* to obtain 1D and 2D SDS-PAGE MALDI-TOF-MS analyses of the merozoite stage. Putignani, L., Del Chierico, F., D'Alessandro. A**.**, Tosini, F., Ronci M**.,** Gomez-Morales, M.A., Ludovisi, A., Rizzo, C., Federici, G., Urbani, A. and Menichella, D.

P5 Genomic, proteomic and subproteomic approaches to gain new insights into the mitochondrial pathways of *Cryptosporidium parvum.* Putignani, L., Del Chierico, F., Petrucca, A., Russo, C., Sanderson, S., Wastling, J., Tachezy, J., Kissinger, J. and Menichella D.

P6 From *Giardia* to *Drosophila*: exploring the conservation of 14-3-3 functions. Lalle M., Leptourgidou F., Camerini S., Pozio E. and Skoulakis E.M.C.

P7 Characterisation of *Giardia duodenalis* subproteome. Gómez-Muñoz, M.T., Cámara, C., Santín, M., Fayer, R., Dea-Ayuela, M.A.

P8 Identification of the signaling mechanism with Ubiquitin in the parasite *Giardia intestinalis* using the hidden Markov model. Castellanos I. and Wasserman M.

P9 Identification and characterization of *Giardia duodenalis* RAD51 homologues. Torres-Huerta A.L., Bazan-Tejeda M.L. and Bermúdez-Cruz R.M.

P10 Expression of ubiquitin (UB), glusocamine-6-phosphate isomerase (GN6PI) and cyst wall protein (CW2) genes during encystment of *Giardia intestinalis*. Eligio-García L., del Pilar Crisóstomo-Vázquez M., Flores-Luna A., Cortés-Campos A., Cano-Estrada A., and Jiménez-Cardoso E.

P11 The effect of inhibitors on *Giardia intestinalis* differentiation. Hofštetrová K. and Nohýnková E.

P12 Identification and preliminary characterization of the putative Mre11 complex in *Giardia duodenalis.* Sandoval-Cabrera A., Zarzosa-Álvarez A. and Bermúdez-Cruz R.M.

P13 DNA damage response in *Giardia* - the effect of UV-C radiation on cell cycle progression. Uzlikova M., Troell K., Svard S., and Nohynkova E.

P14 Autophagy in *Giardia.* Oniku, A. Bagchi, S. and Paget, T A.

P15 Insights into O_2-detoxification and H_2O_2 toxicity in *Giardia intestinalis.* Mastronicola D., Testa F., Mura A., Forte E., Bordi E., Pucillo L.P., Fiori P., Sarti P. and Giuffrè A.

P16 Induction of cell death in *Giardia lamblia.* Corrêa, G., Vilela R., Midlej V., Barreto R., and Benchimol, M.

P17 Kinetics of the temperature-induced spontaneous excystation of *Cryptosporidium parvum* in water. Fontán-Sainz M., Gómez-Couso H., Martín-Vázquez S., Otero-Loureiro P. and Ares-Mazás E

18:00-20:00 **THEORETICAL AND PRACTICAL WORKSHOP:**
The use of genome databases resources
Organizers: J. KISSINGER and D. ROOS

Tuesday 13 October

9:00-9:40 **HOST-PARASITE RELATIONSHIP-1 (INVASION / ATTACHMENT)**
Chairs: A. HEHL (SWITZERLAND),F. TOSINI (ITALY)

Invited speakers' lectures

O27 Adhesion of *Giardia* to epithelial cells: organelles, molecules and their effects on the host.
G. ORTEGA-PIERRES (Mexico)

O28 Interaction of *Cryptosporidium* with host cells.
H. WARD (USA)

9:40-10:30 **Oral Presentations**

O29 Transcriptional changes in *Giardia lamblia* during *in vitro* interactions with human cells. Ringqvist E., Troell K., and Svärd S.

O30 New aspects about interaction between *Giardia lamblia* and intestinal cells. Maia C., Morgado-Diaz J. and de Souza W.

O31 Nitric oxide effect on *Giardia* encystment. Goldberg B., Eichinger D., Harris K.M., Paget T., Lindmark D., van Keulen H., and Jarroll E.

O32 The elusive molecular repertoire of *Cryptosporidium* rhoptry: searching for the first specific marker. Valentini E., Cherchi S., Pozio E., Spano F.

O33 Immunolabelling of surface proteins in *Cryptosporidium parvum*. Clode P.L., Borowski H., Armstrong T., Koh W.H. and Thompson R.C.A.

10:30-11:00 COFFEE BREAK

11:00-11:40 **HOST-PARASITE RELATIONSHIP-2 (IMMUNOLOGY)**
Chairs: G. ORTEGA-PIERRES (MEXICO), A. BURET (CANADA)

Invited speakers' lectures

O34 Immunity against *Cryptosporidium* infection.
F. PETRY (Germany)

O35 Cellular and humoral immune responses against *Giardia*.
S. SINGER (USA)

11:40-12:30 **Oral Presentations**

O36 Activation of protective immune response in gastric mucosa during *Cryptosporidium muris* and *Cryptosporidium andersoni* infection. Jalovecká M., Kváč M., Sak B., Salát J. and Květoňová D.

O37 Enhanced humoral and cellular immune responses to *Cryptosporidium parvum* by systemic and mucosal delivery of SA35 and SA40 peptides. Gómez-Morales M.A., Ludovisi A., Tosini F., Amati M.,Tonanzi D., Pozio E.

O38 Human cellular immune responses to recombinant *Giardia* antigens arginine deiminase and α-1-giardin in previous *Giardia* patients and low risk controls. Hanevik, K., Ringqvist,E., Jerlström-Hultqvist, J., Svärd, S., Kristoffersen, E., Bruserud, O., Hausken, T. and Langeland, N.

O39 Modulation of IL-10 through ERK-MAPK signalling in human duodenal biopsy from *Giardia lamblia*-infected patients. Matera G., Zicca E., Pulicari M. C., Muto V., Lamberti A. G., Vinci M., Carrabba A., Suraci E., Imeneo M., Luzza F., Liberto M.C., Focà A.

12:30-14.00 LUNCH

14:00-14:40 **HOST-PARASITE RELATIONSHIP-3 (PATHOGENESIS)**
Chairs: F. PETRY (GERMANY), N. MULLER (SWITZERLAND)

Invited speakers' lectures

O40 Pathophysiology of *Giardia* infection.
A. BURET (Canada)

O41 Pathophysiology of *Cryptosporidium* infection.
X.M. CHEN (USA)

14:40-15:30 **Oral Presentations**

O42 Infectivity of different *Giardia duodenalis* genotypes for the gerbil and *in vitro* axenisation of trophozoites. Bénéré E., Geurden T., Robertson L., Cos P. and Maes L.

O43 Is *Cryptosporidium hominis* really a distinct species from *Cryptosporidium parvum*? Giles M., Marshall J., Elwin K., McLauchlin J., Leoni F., Mueller-Doblies D., Clifton-Hadley F. and Chalmers R.

O44 *Cryptosporidium parvum*-Induced Gastrointestinal Neoplasia of SCID mice is not a parasite strain dependent event. Certad G., Creusy C., Guyot K., Chassat T., Mouray A., Fleurisse L., Pinon A., Sitja-Bobadilla A., Alvarez-Pellitero P., and Dei-Cas E.

O45 Chromogenic in-situ hybridization for the specific detection of *Cryptosporidium* spp. in tissue samples from animals. Richter B., Mostegl M., Kübber-Heiss A. and Weissenböck H.

15:30-16:00 COFFEE BREAK

16:00-18:00 **Poster sessions 1 and 2 (Sala Expo)**

P18 Comparison between IgM and IgG_1 monoclonal antibodies for the detection of *Cryptosporidium parvum* and *C. muris* by immunofluorescence. Burnet J-B., Bonjean N., Hoffmann L., Cauchie H-M and Nicolas J.

P19 Serological responses to *Cryptosporidium* sp. in inhabitants of Hungary. Farkas K., Török A., Domokos K., Varró M.J. and Plutzer J.

P20 Production of a *Giardia lamblia* Cyst Wall Recombinant Protein 2 (CWP2) in *Escherichia coli* and development of specific antibodies. Silva P., Costa S., Almeida A., Conceição A., Castro A., and Laires A.

P21 *Giardia intestinalis*: frequency and genotype found in puppies immunized with *Giardia*-Vax vaccine. Jiménez-Cardoso E., Eligio-García L., Cortés-Campos A., Cano-Estrada A., Flores-Luna A., Pinto-Sagahón M. and Noguera-Estrada C.

P22 Production of a recombinant *Cryptosporidium parvum 12kDa* protein in *Escherichia coli* and development of specific antibodies. Costa S., Silva P., Almeida A., Conceição A. and Castro A.

17:30-19:00 **WORKSHOP**
Giardia and _Cryptosporidium_: Response to stress stimuli
Organizers: G. ORTEGA PIERRES and N. MULLER

Invited speakers' lectures

046 Effects of albendazole on the energy metabolism of *Giardia duodenalis.*
G. ORTEGA PIERRES (Mexico)

047 Stress responses in *Giardia*
S. SVARD (Sweden)

048 *Cryptosporidium* responses to stress: what do we know today
G. ZHU (USA)

19.30-20.00 Sponsor presentation:
Automating the detection of *Cryptosporidium* in drinking water
G. SHAW, Director of Innovation & New Technology, Shaw Technologies
(A drink will be offered to participants)

22:00-02:00 Jazz Concert at the Bevipiano jazz club, Orvieto

Wednesday 14 October

9:00-9:40 **MOLECULAR EPIDEMIOLOGY -1 (*Cryptosporidium*)**

Chairs: G. WIDMER (USA), S.M. CACCIO' (ITALY)

Invited speakers' lectures

O49 Molecular epidemiology of human cryptosporidiosis.
R. CHALMERS (UK)

O50 Epidemiology of human cryptosporidiosis in endemic areas.
L. XIAO (USA)

9:40-10:30 **Oral Presentations**

O51 Molecular epidemiology of *Cryptosporidium* and *Giardia* in children in Shanghai, China. Y.Y. Feng, L.P. Duan, A.G. Luis, J.J. Hu, N. Zhang and L. Xiao (China)

O52 Prevalence and characterization of *Giardia* and *Cryptosporidium* in human and domestic animals in a rural area of Vietnam. L.P. Nguyen, C.D. Phung and R.C.A. Thompson

O53 Molecular characterization of *Cryptosporidium* isolates from Jordan and identification of rare GP60 subtypes. N. Hijjawi, J. Ng, R. Yang and U. Ryan

O54 Molecular characterization of *Cryptosporidium* isolates from humans and animals in Bonoua area (Côte d'Ivoire). R. D'Alfonso, F. Berrilli, D. Di Cave, M. Marangi, R. Lauro, O. Brandonisio and A. Giangaspero

O55 Epidemiology of unusual human cryptosporidiosis in England and Wales. K. Elwin, G. Robinson, S.J. Hadfield and R.M. Chalmers

10:30-11:00 COFFEE BREAK

11:00-11:40 **MOLECULAR EPIDEMIOLOGY -2 (*Giardia*)**

Chairs: U. RYAN (AUSTRALIA), T. GEURDEN (BELGIUM)

Invited speakers' lectures

O56 Molecular epidemiology of human giardiasis.
H. SPRONG (The Netherlands)

O57 Giardiasis in non-endemic areas: molecular characterization as a predictor for clinical picture, treatment outcome, and persistence.
N. LANGELAND (Norway)

11:40-12:30 **Oral Presentations**

O58 Genotyping of *Giardia lamblia* by multilocus sequence typing (MLST). Jansen R. and Mank T.

O59 Genotypic variation in sequential episodes of human giardiasis. Cama V., Peñataro P., Gilman R., Kahn G., Xiao L. and Kosek M.

O60 *Giardia duodenalis* micro-epidemiology in Ivory Coast: prevalence and multilocus typing. Berrilli F., D'Alfonso R., D'Orazi C., Cianfanelli C., Marangi M., Giangaspero A., Brandonisio O., Lauro R. and Di Cave D.

061 Identification of *Giardia* species and *G. duodenalis* assemblages by sequence analysis of the 5.8S rDNA gene and internal transcribed spacers. Beck R., Almeida A., Baier A., Pozio E. and Cacciò S.M.

12:30-14:00 LUNCH

14:00-14:40 **BIODIVERSITY AND PARASITE ECOLOGY**

Chairs: R.C.A. THOMPSON (AUSTRALIA), E. POZIO (ITALY)

Invited speakers' lectures

O62 Biodiversity of *Cryptosporidium*: what are we overlooking?
M. POWER (Australia)

O63 *Giardia* in wild mammals.
L. ROBERTSON (Norway)

14:40-15:30 **Oral Presentations**

O64 *Cryptosporidium* and *Giardia* in fish – identification of novel and zoonotic genotypes. Ryan, U. and Reid, A.

O65 Cyclical ecology of cryptosporidiosis in New Zealand. Prattley, D., Kwan, E., Shi, Y., Pomroy, B., Pita, A., Learmonth, J., French, N. and Grinberg, A.

O66 Molecular characterization of *Cryptosporidium* isolates from a house mouse hybrid zone in the Czech Republic and Germany. Kváč M., Sak B., Květoňová D. and Piálek J.

O67 The first large scale molecular study of *Cryptosporidium* and *Giardia* in horses. Santín M., Cortés Vecino J.A., and Fayer R.

15:30-16:00 COFFEE BREAK

16:00-16:40 **POPULATION MOLECULAR GENETICS**

Chairs: R. CHALMERS (UK), L. XIAO (USA)

Invited speakers' lectures

O68 Population genetics of *Cryptosporidium parvum* and *C. hominis.*
A. GRINBERG (New Zealand)

O69 Sex, recombination and the population genetics of *Giardia duodenalis.* R.D. ADAM (USA)

16:40-17:30 **Oral Presentations**

O70 A birds-eye view of GP60 polymorphism in *Cryptosporidium parvum* and *Cryptosporidium hominis.* Widmer G.

O71 Infraspecific genotyping of *C. parvum* and *C. hominis* human isolates in France. Guyot K., Dei-Cas E., Caro V., Diancourt L., Certad G., Gantois N., Dutoit E., Derouin F. and Brisse S.

O72 Real-time PCR assays for the specific and simultaneous detection of assemblages A and B of *Giardia duodenalis*. Almeida A., Pozio E. and Cacciò S.M.

O73 Does phylogenetic substructure exist in *Giardia duodenalis* assemblage B? Wielinga C., Monis P. and Thompson A.

O74 Sequence heterogeneity within diplomonad cells. Andersson, J. O.

17:30-19.00 **ROUND TABLE:**
Revision of the *G. duodenalis* nomenclature and taxonomy
Organizers: R.C.A. THOMPSON and S.M. CACCIO'

Invited speakers' lectures
O75 Genetic and phenotypic variation in *Giardia duodenalis* as a basis to revise the taxonomy.
R.C.A. THOMPSON (Invited speaker, Australia)

17:30-19:30 **Poster sessions 3 (Sala Etrusca)**

P23 Molecular characterization of *Cryptosporidium* spp. in dairy cattle in South Bohemia, the Czech Republic. Ondráčková z., Kváč M., Sak B. and Květoňová D.

P24 Comparative extraction of *Cryptosporidium* DNA from stools. Elwin K., Campbell B.M., Hadfield S.J. and Chalmers R.M.

P25 Genotyping of *Cryptosporidium* spp. from formalin-fixed clinical faecal samples. Del Chierico, F., Onori, E., Cacciò, S.; Bordi, E., Petrosillo, N., Menichella, D. and Putignani, L.

P26 Polymorphisms in the CpA135 gene of *Cryptosporidium* species and development of a PCR-RFLP genotyping assay. Tosini F., Drumo R., Chalmers R., Pozio E. and Cacciò S.M.

P27 *Cryptosporidium* cervine genotype is the major genotype in sheep in Henan, China. Wang Y., Feng Y.,Cui B., Jian F., Ning C., Wang R., Zhang L. and Xiao L.

P28 Prevalence and molecular characterization of *Cryptosporidium* sp. infection in calves, lambs and goat kids reared in a same farm in France. Paraud, C., Guyot, K., and Chartier, C.

P29 Preliminary report on prevalence and genotyping of *Cryptopsoriidum* spp in cattle from Tuscany (Central Italy). Merildi V., Mancianti F., Lamioni H., Passantino A. and Papini R.

P30 Secondary household transmission of *Cryptosporidium parvum* during an outbreak amongst Norwegian schoolchildren. Johansen O.H., Skaare D., Thrana F., Stachurska-Hagen T, and Robertson L.

P31 Prevalence of *Cryptosporidium* species in young beef cattle in France. Follet, J., Guyot, K., Leruste, H., Follet-Dumoulin, A., Dei-Cas, E. and Halama, P.

P32 Molecular characterization of *Cryptosporidium* isolates from humans in Ethiopia. Petry F., Petros B., Hailu A. and Adamu H.

P33 PCR assay for species-specific detection of *Cryptosporidium* in tissue and faecal samples from animals. Richter B., Nedorost N. and Weissenböck H.

P34 Present epidemiological situation of human cryptosporidiosis in the Western part of Romania. Mederle O., Mederle N., Darabus G., Imre K., Olaru R.T., Popovici E.. and Baditoiu L.

P35 The molecular characterization of *Cryptosporidium* mouse genotype I. Schneck, B.L., Moriarty, E.M., Giddings, C.W., and McEvoy, J.M.

P36 Molecular characterization of *Cryptosporidium* spp. from pigs collected in the Czech Republic. Kváč M., Sak B., Květoňová D. and Jeníková M.

P37 Genetic analysis of *Cryptosporidium* isolates from cattle, in Romania. Mederle N., Lobo M.L., Kalman I., Dărăbus G., Amorim A. and Matos O.

P38 Human cryptosporidiosis in France: analysis of data collected for the last three years through the ANOFEL Cryptosporidium Network. Guyot K., Dutoit E., Dei-Cas E.,De Montbrison F. and Derouin F.

P39 *Cryptosporidium* diagnostics – Comparison of methods and implications for public health care in the UK. Campbell, B.M., Davies A.P. and Chalmers, R.M.

P40 *Cryptosporidium* and other pathogen agents involved in neonatal diarrhea in calves in the Western part of Romania. Darabus, G., Imre K., Mederle N., Ilie M., Morariu S., Herman V. and Mederle O.

P41 Temporal and spatial distribution of gp60 subtypes in human cryptosporidiosis cases in Ireland. Zintl A., Mirashemi M., Chalmers R.M., Elwin K., Mulcahy G. and De Waal T.

P42 Detection of *Cryptosporidium* spp. in faeces of calves affected by enteric disorders in Central Italy. Mangili P., D'Avino N., Venditti G., Centellini M., Filippini G., Pezzotti G. and Grelloni V.

P43 Risk factors for *Cryptosporidium parvum* gp60 subtypes in patients in England and Wales. Chalmers, R.M., Smith, R., Elwin, K., Hadfield, S.J. and Giles, M.

P44 *Cryptosporidium spp.* identification in young pigs in industrial farms in Timis County. Darabus G., Mederle N., Imre K., Ilie M., Oprescu I., Hotea I. and Mederle O.

P45 Evaluation of DNA melting curve analysis real-time PCR for detection and differentiation of *Cryptosporidium* spp. Soliman R.H. and Othman A.A.

P46 Preliminary results on molecular diagnosis of animal cryptosporidiosis in Sicily. Vitale M., Agnello S, La Giglia M., Curro V., Vitale F. and Stancanelli, A.

P47 A retrospective analysis of prevalence of *Giardia intestinalis* parasitism in the Tunis region: Results of 4 years study. Khaled S., Trabelsi S. and Ben Hadj Ali

P48 Predominance of zoonotic *Giardia* assemblage A in dogs in Portugal. Sousa M.C.

P49 Molecular characterization of *Giardia* isolates from dairy calves in Palermo city, South Italy. Di Piazza F., Maida C.M., Di Benedetto M.A., Glorioso S. and Romano N.

P50 A comparison of 3 diagnostics methods for the detection of *Giardia intestinalis* in diarrheal stool samples from indigenous Tapirape Indians, Confresa municipality, Mato Grosso, Brazil. Malheiros, A., Soares, R., Lemos, I., Sander, A., Tapirapé, X., Tapirapé, K. and Shaw, J.

P51 Genotyping of *Giardia lamblia* isolates from Humans biopsies in Portugal. Julio C., Matias D., Rosario M., Vilares A., Gargate M.J., Ferreira I., Martins S., Tenreiro R. and Ângelo H.

P52 Comparison of Two Target Genes for Detection and Genotyping of *Giardia duodenalis* in mammals. Ravagnan S., Minazzato E., Coppellotti O., Piccolo S., Capelli G. and Granato A.

P53 Occurrence of *Giardia lamblia* Assemblages AII and B, but not AI, in human isolates from the State of São Paulo, Brazil. Jensen, J.R., Carvalho, T.T.R., Martins, J., Lourenço, W.C., de Souza, S.O., Capuano, D.M. and Soares, R.M.

P54 Occurrence of *Cryptosporidium* spp. e *Giardia* spp. in domestic cats from Andradina city, São Paulo State, Brazil. Coelho, W.M.D., Lima, V.M.F., Amarante, A.F.T., Meireles, M.V., Lima, L.G.F., Garcia, S.D. and Bresciani, K.D.S.

P55 Multilocus typing of *Giardia* isolates in returning travellers. Broglia, A., Weitzel, T., Harms-Zwingenberger, G., Cacció S.M. and Nöckler, K.

P56 Detection of enteroprotozoan parasites in the dog rescue centre at Santiago de Compostela, Galicia (NW Spain). García-Verde, M.J., Aguirre-Colmenar, P., Gómez-Couso, H. and Ares-Mazás E.

P57 Molecular characterization of *Giardia intestinalis* obtained from members of the indigenous tapirapé tribe that is located in the Confresa municipality, Mato Grosso, Brazil. Malheiros, A., Soares, R., Brandão, P., Martins, J., Sercundes, M., Silva, S., Santos, V, and Shaw, J.

P58 Compared sensitivity of PCR (SSU-rRNA, b-giardin, tpi and gdh) and immune-fluorescence analysis to detect *Giardia duodenalis.* Gómez Muñoz M.T., Cámara C., Dea-Ayuela M.A., Navarro Villanueva C., Santín-Durán M. and Fayer R.

P59 Human *Giardia lamblia* strains among cats and dogs. Jansen, R. Kroon, A. and Mank, T.G.

P60 Molecular characterisation of *Giardia duodenalis* from humans from cities of the coast of São Paulo, Brazil. Martins, J., Sercundes, M., Silva, S.O.S, Zé Ricardo, Richtzenhain, L., Gennari, S. and Soares, R.

P61 Six novel genetic markers for the specific detection of *Giardia duodenalis* assemblages A and B. Tosini F., Vanni I., Almeida A., Pozio E. and Cacciò S.M.

P62 Identification of *Giardia* genotypes in dogs from kennels and veterinarian clinics in France. Bermúdez-Cruz R., Thomas M., Alliot A., Bahuon C., Polack B., Boireau P. and Ortega-Pierres G.

P63 Molecular characterization of *Giardia lamblia* from clinical isolates from northwest Mexico. Astiazarán-García H., Vanegas-Villa S., Miranda-Ozuna J., Quihui-Cota L., Pacheco-Moreno B. and Mendoza-Bermúdez D.

P64 Genotyping of *Giardia duodenalis* isolates of mammals (dogs, cats, bobcats and cattle) by the β-giardin, glutamate dehydrogenase and triose phosphate isomerase genes. AV Scorza, MR Lappin and LR Ballweber

P65 Molecular characterization of *Cryptosporidium spp.* from fecal samples of birds kept in captivity in Brazil. Nakamura A.A., Antunes R.G. and Meireles M.V.

P66 An outbreak of concurrent ocular and respiratory disease by *Cryptosporidium baileyi* in captive otus owls (*Otus scops*). Molina-López R.A., Ramis A., Gómez-Couso H., Martín-Vázquez S., Ares-Mazás E., Cacció, S. and Darwich L

P67 Genotyping of *Giardia duodenalis* from game animals in Poland using the *β-giardin* gene: a phylogenetic analysis. Solarczyk P., Majewska A. C., Moskwa B. and Cabaj W.

P68 Storage of *Giardia* cysts in stool samples: which preservation method provides the best PCR results? Wilke H. and Robertson L.

P69 *Cryptosporidium* genotypes in Midwestern mammals. Pennil, C.C., Schneck, B.L., Giddings, C.W., Clark, M.E. and McEvoy, J.M.

P70 Identification of assemblage B *Giardia duodenalis* in tamandua (*Tamandua tetradactyla*) in the Poznan ZOO, Poland. Solarczyk P. and Majewska A. C.

P71 Occurrence of *Cryptosporidium* spp. and *Giardia* spp. in pigs at weaning. Junqueira Matos D., Meireles M.V., Ferraz Lima L.G., Talamimi do Amarante A.F., Diniz Garcia S. and Bresciani K.D.S.

P72 *Cryptosporidium* and *Giardia* in wildlife from Galicia (NW Spain): preliminary data. Otero-Loureiro P., Fontán-Sainz M., Martín-Vázquez S., Gómez-Couso H. and Ares-Mazás, E.

P73 Evaluation of the role of wild rodents as reservoirs for *Cryptosporidium* and *Giardia* infection in extensively raised cattle in Spain. Pedraza-Díaz S., Rengifo-Herrera C., Gómez-Bautista M., Ortega-Mora L.M., Soriguer RC., Carro F. and Ferre I.

P74 Population genetic structure of *Cryptosporidium parvum* in Italy. Drumo R., Tosini F., Pozio E., and Cacciò S.M.

P75 Multilocus Sequence Typing of *Cryptosporidium hominis* in the United States in 2008. Tiao N., Hlavsa M.C., Dearen T., Yang W., Li N., Cantey P.T., Yoder J., and Xiao L.

P76 Allelic sequence divergence within single *Giardia intestinalis* parasites. Lebbad M., Solna, Ankarklev J., and Svard S.

P77 Population structure of *Cryptosporidium parvum* in the Upper Midwest United States. Herges, G.R., Pennil, C.C. and McEvoy, J.M.

20:30 Conference dinner (Restaurant “Al San Giovenale”, Orvieto)

Thursday 15 October

9:00-9:40

WATER TREATMENT AND CONTROL

Chairs: L. ROBERTSON (NORWAY), H. SMITH (UK)

Invited speakers’ lectures

O76 Occurrence and significance of *Giardia* and *Cryptosporidium* in water samples
P. MONIS (Australia)

O77 Biomonitoring of *Cryptosporidium* and *Giardia*.
T. GRACZYK (USA)

9:40-10:30 **Oral Presentations**

O78 Quantitative Assessment of risk due to *Cryptosporidium* and *Giardia* in very small water supplies. Hunter P.R., de Sylor M.A., Nichols G., Hartemann P. and Kay D.

O79 Macroinvertebrates biofouling navigational aids as sentinel organisms for monitoring *Cryptosporidium* and *Giardia* in major waterways. Conn D.B., Conn D.A. and Graczyk T.K.

O80 Managing the Quality of *Cryptosporidium* Laboratories for the Long Term 2 Enhanced Surface Water Treatment Rule in the United States. Miller C.

O81 Adding Value to Regulatory Monitoring: Genotyping of *Cryptosporidium* Oocysts Recovered From Slides. Di Giovanni G.D., Garcia N.F., Hoffman R.M. and Sturbaum G.D.

O82 Relative risk of *Cryptosporidium* spp. transport in an irish catchment. Samadder, S. R, Peng, X, McDonald, S, Murphy, T. M, Berzano, M, Ziegler, P.E. and Holden, N. M.

10:30-11:00 COFFEE BREAK

11:00-11:40 **ENVIRONMENTAL AND OUTBREAK INVESTIGATIONS**

Chairs: G. Di GIOVANNI (USA), P. MONIS (AUSTRALIA)

Invited speakers' lectures

O83 Lesson learnt from *Cryptosporidium* outbreak investigations.
G. NICHOLS (UK)

O84 *Cryptosporidium* and *Giardia* in foodstuffs.
H. SMITH (UK)

11:40-12:30 **Oral Presentations**

O85 *Cryptosporidium*: Sydney outbreak and fluorescence for rapid parasite identification. Waldron L., Cheung-Kwok-Sang C., Musto J. and Power M.

O86 The *Cryptosporidium* rabbit genotype in human outbreak and sporadic cases. Chalmers, R.M., Elwin, K., Puleston, R., Robinson, G., Hadfield, S.J., Modha, D. and Mallaghan, C.

O87 Molecular profiling of oocysts from raw water indicates a low public health risk from waterborne *Cryptosporidium* in Canada. Ruecker N.J., Matsune J. and Norman F. Neumann

O88 *Cryptosporidium* typing during public health related water quality incidents and outbreaks. Robinson, G., Elwin, K., Hadfield, S. and Chalmers, R.M.

O89 Hands in slurry: comparative analysis to evaluate DNA extraction procedures for the identification of *Cryptosporidium* spp. from agricultural slurry. Berzano M., McDonald S., Ziegler P., Peng X., Samadder S., De Waele V., T. Murphy and Holden N.M.

12:30-14:00 LUNCH

14:00-14:40 **CLINICAL ASPECTS IN HUMANS AND ANIMALS**

Chairs: G. GARGALA (FRANCE), T. MANK (NETHERLANDS)

Invited speakers' lectures

O90 Significance of *Giardia* and *Cryptosporidium* infection in pets and production animals.
T. GEURDEN (Belgium)

O91 Significance of *Giardia* and *Cryptosporidium* infection in humans.
L.M. KORTBEEK (The Netherlands)

14:40-15:40 **Oral Presentations**

O92 Persistent gastro-intestinal symptoms after infection with *Giardia lamblia*. A one-year follow-up in general practice. Wensaas K., Langeland N., and Rortveit G.

O93 Low incidence, high species diversity: asymptomatic *Cryptosporidium* carriage in UK pre-school age children. Davies A.P., Campbell B., Evans M.R., Bone A., Roche A. and Chalmers R.M.

O94 Seasonal prevalence of *Cryptosporidium* and *G. duodenalis* and genotyping of *Cryptosporidium* from pre-school children in Zambia (preliminary results). Siwila J., Phiri I.G.K., Enemark H.L., Nchito M. and Olsen A

O95 Field Studies of *Cryptosporidium* and *Giardia* infection in Tanzania and Bangladesh. Houpt E., Taniuchi M., Stroup S., Tongjai S., Swai L., Maro A., Maro V., Kibiki G., Mondal D., Karim A. , Molla I.H., Rahim A., Faruque A.S., Ahmad N., Snider C., Petri W.A. Jr and Haque R.

O96 CD4 counts and enteric infection in Jos, Nigeria. Pam, V.A., Onwuliri, C.O.E. and Omalu, I.C.J.

O97 Morphometrics of assemblages of *Giardia duodenalis* cysts from the feces of dogs and cats. Stephanie B. Yager, Britta A. Okyere, Marissa Karpoff, Hyun Ji Kim, Hussni O. Mohammed, Janice L. LiottaAraceli Lucio-Forster and Dwight D. Bowman.

15:40-16:00 COFFEE BREAK

16:00-16:40

THERAPEUTIC APPROACHES FOR THE TREATMENT OF CRYPTOSPORIDIOSIS AND GIARDIASIS

Chairs: T. KORTBEEK (NETHERLANDS)

Invited speakers' lectures

O98 Drug treatment and novel drug targets in *Cryptosporidium.*
G. GARGALA (France)

O99 Drug resistance in *Giardia*.
N. MULLER (Switzerland)

16:40-17:30 **Oral Presentations**

O100 Antiparasitic Activity of Novel Isoflavones against *Cryptosporidium parvum*. Mead J.R., McNair N., Telang N. S, Benitez A. J. and Avery M. A.

O101 Effects of octreotide therapy on pathogenic consequences of *Cryptosporidium parvum* infection in an immunocompetent suckling rat model. Jie B., Gargala G., Khaldi S., Baishanbo A., Francois A., Ballet J-J, Favennec L. and Le Goff L.

O102 A systematic review on the treatment of giardiasis. Mank T. and Zaat J.O.M.

O103 Antioxidant metabolism and albendazole resistance in *Giardia duodenalis.* Argüello-García, R., Cruz-Soto, M, González-Trejo, R, Paz-Maldonado, LMT, Bazán-Tejeda. ML, Mendoza, G and Ortega-Pierres, G.

O104 Metronidazole and other nitroimidazole drugs disrupt the cellular redox balance of microaerophilic parasites. Leitsch D., Burgess A., Dunn L., Duchene M., and Upcroft J.

17:30-18:30 **Poster session 4 (Sala Expo)**

P78 Ecological dissemination of *Giardia* and *Cryptosporidium* (oo)cysts in a tropical polysaprobic hydrosystem. Ajeagah, G.A., Njine T., Foto S.M. and Smith H.

P79 Temporal aspects of Irish agriculture affecting the fate of *Cryptosporidium parvum.* McDonald, S., Ziegler, P., Murphy, T., Berzano, M., Peng, X., Samadder, S. and Holden, N.M.

P80 Evaluation of treatment efficacy on *Giardia lamblia* by Flow Cytometry. Barbosa J., Gonçalves Rodrigues A. and Pina-Vaz C.

P81 Characterization of two farm to human transport vectors for *Cryptosporidium parvum*: The risk of environmental versus social vectors. Ziegler, P.E., Samadder, S.R., Peng X., Murphy, T.M., McDonald, S., Berzano. M. and Holden, N.M.

P82 Estimating the relationship between *Cryptosporidium* and *Giardia*, and indicator organisms in surface water. Wang X. and Hunter P.R.

P83 *Cryptosporidium* and *Giardia* contamination in urban and rural watersheds in the midwestern USA. Wendt C., Ives R., Molloy S., Singh S. and Rose J.

P84 Filtration of *Cryptosporidium parvum* oocysts through structured soils in Ireland. X. Peng, S. McDonald, T. Murphy, M. Berzano, P. Ziegler, S. Samadder and Holden N.M.

P85 Environmental sources of human-virulent *Cryptosporidium* spp. and *Giardia duodenalis* from municipal wastewater treatment plants. Cheng H.W., Lucy, F.E., Graczyk T.K., and Broaders M.A.

P86 Occurrence of *Giardia lamblia* and *Cryptosporidium* spp. in Portuguese fluvial beaches: risk for public health. Julio C., Ferreira I., Sá C., Ângelo H., Tenreiro R. and Guerreiro J.

P87 The die-off effect on *Giardia* cysts and *Cryptosporidium* oocysts after thermophilic or mesophilic sewage sludge treatment. Hansen A. and Schönning C.

P88 Evaluation of water treatment plant UV reactor efficiency against *Cryptosporidium parvum* oocyst infectivity in immunocompetent suckling mice. Le Goff L., Khaldi S, Nauleau F., Meneceur P., Perot J., Ballet J.J., Favennec L., and Gargala G.

P89 High prevalence of *Cryptosporidium andersoni* in surface water during a major spring flooding event. Pennil, C.C., Clark, M.E., Schneck, B.L., Giddings, C.W. and McEvoy, J.M.

P90 Monitoring and Identifying the Sources of *Giardia* and *Cryptosporidium* Contamination in the Bangkok Chao Phraya River. Y. Sukthana

P91 *Cryptosporidium* oocysts circulation in a karst system (Normandy, France). S. Khaldi, M. Ratajczak , G. Gargala, L. Favennec and JP Dupont

P92 Contamination of surface and treated water with *Cryptosporidium* spp. and *Giardia* spp. in Poland. Anna Bajer, Bozenna Toczylowska, Małgorzata Bednarska and Edward Sinski

P93 *Cryptosporidium parvum* inactivation in liquid food using Pulsed Electric Fields (PEF). Bonetta Si., Motta F., Bonetta Sa., Ferrari G., Pataro G., Dellacasa G. and Carraro E.

P94 Detection of *Cryptosporidium* and *Giardia duodenalis* in bivalve molluscs of the adriatic sea. Leoni F., Canonico C., Potenziani S. and Rocchegiani E.

P95 Outbreak of cryptosporidiosis among schoolchildren staying in a nature reserve in Norway. Rimšelienė G., Vold L., Robertson L., Nelke C., Søli K. and Nygård K.

P96 Tracking *Cryptosporidium* spp. in source and finished water in Portugal. Lobo M.L., Xiao L., Antunes F. and Matos O.

P97 The detection and resolution of mixtures of *Cryptosporidium* by genus specific nested PCR. Ruecker N.J., Schafer R. and Neumann N.F.

P98 Development of a PCR protocol for *Cryptosporidium parvum* and *Giardia* spp. detection in fresh vegetables. Bonetta Si., Bonetta Sa, Bernardi S., Carena D. and Carraro E.

P99 *Giardia* and *Cryptosporidium* in *Mytilus galloprovincialis* from the Campania region of southern Italy. Cirillo R., Rinaldi L., Anastasio A., Musella V., Cortesi M.L. and G. Cringoli

P100 Comparative biology of *Cryptosporidium hominis* and the *Cryptosporidium* rabbit genotype. Chalmers, R.M., Robinson, G., Wright, S., Hunter, P.R., Elwin, K., Bouzid, M., Innes, E.A., Hadfield S.J., Tyler, K., and Katzer, F.

P101 Fatigue and Gastrointestinal Disorders Three Years After an Outbreak of Giardiasis. Wensaas K., Langeland N., Hanevik K., Mørch K., Hausken T. and Rortveit G.

P102 Morphological and immunohistochemical features of *Cryptosporidium parvum* in cattle. Mederle O., Mederle N., Imre K. and Darabus Gh.

P103 Observations and immunohistochemical detection of spontaneous *Cryptosporidium parvum* infection in lambs. Mederle N., Mederle O., Raluca C., Cimpean A.M. and Darabus Gh.

P104 Phisyopathobiology of cryptosporidiosis in immuonosuppressed animal models. Nahrevanian, H., Abedinzadeh L., Ghasemi K., Eslamifar A., Esfandiary B., Rahbari S., Ezzaty Mirhashemi M., Davoodi J. and Naeimi S.

P105 Impact of *Giardia intestinalis* on vitamin A status in schoolchildren from northwest Mexico. Quihui-Cota L., Astiazarán-García H., Valencia M.E., Morales-Figueroa G.G., Lopez-Mata M.A. and Vazquez-Ortiz F.

P106 *Cryptosporidium* and cryptosporidiosis: prevalence and symptoms associated with the infection in northern Nigerian children. Pam, V.A, Owuliri, C.O.E., Omalu, I.C.J. and Gbesi, D.

P107 Co-infection of *Blastocystis hominis* and *Giardia lamblia* in patients of Tonekabon citiy from Mazandaran Province, Northern Iran. H. Nahrevanian, S.A. Azarinoosh, B. Esfandiary and A. Amirkhani

P108 Prevalence rate of cryptosporidiosis and other enteropathogenic parasites in gastroenteritic patients from western cities of Mazandaran Province, Northern Iran. H. Nahrevanian[1], S.A. Azarinoosh, B. Esfandiary and A. Amirkhani

P109 Opportunistic parasites in immunocompetent and immunodeficient patients with diarrhea. Malgorzata Bednarska, Anna Bajer, Thaddeus Graczyk and Edward Sinski

P110 Anti-Giardia activity of *Syzygium aromaticum* essential oil and eugenol. Machado M., Salgueiro L., Cavaleiro C., Dinis A. M. and Sousa M.C.

P111 Absence of activity of oral tilmicosin against cryptosporidiosis in neonatal kids under field conditions. Paraud, C. and Chartier, C.

P112 The pursuit of the *Cryptosporidium parvum* S-adenosylhomocystein hydrolase inhibitors. Mária Šurinová, Jason M. Fritzler, Antonín Holý, Ivan Hrdý, and František Stejskal

18:30-19:30 **CONCLUSIONS, SELECTION OF VENUE OF IGCC IV AND CLOSING CEREMONY**

20:00 **FAREWELL COCKTAIL**